

SILICON TIMES REPORT
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> 04/14/95 STR 1115 "The Original * Independent * OnLine Magazine!"
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STReport International OnLine Magazine
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> From the Editor's Desk "Saying it like it is!"
 "*****"

Happy Easter to everyone! Spring is here for sure now. Sunday will reveal all those pretty Easter Bonnets and fresh faced kids chasing those elusive eggs. What a wonderful time of the year! Chocolate Bunnies, Jelly Beans and all those other great goodies. Let's not forget Easter's traditional dinner. Better yet... be sure to remember the real reason there is an Easter. As much as I try to keep Christ in Christmas, I also try to remember the real meaning of Easter. I hope you do too. Especially this year, knowing those two felows are under the oppressive Iraqi thumb. Perhaps, a silent prayer or two for those guys is really in order.

Spring Comdex is right around the corner.. Win'95 is getting stronger by the minute and the support is running super strong. Win'95 shows every indication of breaking all sorts of records for sales and market penetration. Its deserved, Win'95 is the first OS I can honestly say I have FUN using. Its everything I've wanted in an OS and much, much more. It has things in it I never knew I wanted. Take the plunge, you'll never look back.

Ralph...

Of Special Note:

STReport will be branching out further to Internet's userbase in the very near future. We've received numerous requests to receive STReport from a wide variety of Internet addresses. As a result, we're putting together an Internet distribution/mailing list for those who wish to receive STReport on a regular basis, and we'll UUENCODE each issue and mail it to you.

If you're interested in being added to our mailing list, please, send your requests to either "dpj@delphi.com" or, RMARIANO@DELPHI.COM. Look for mailings to begin by October first. We are also considering a number of Internet ftp sites in which to post our issues for as well. Whatever we can do to make STReport available to you. we'll try it!

STReport's Staff

DEDICATED TO SERVING YOU!

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Ralph F. Mariano

Lloyd E. Pulley, Editor, Current Affairs

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develop the high standards of straight forwardness our readers have come to expect in each and every issue.

The Staff & Editors

> STR INDUSTRY REPORT

LATE BREAKING INDUSTRY-WIDE NEWS

IBM/POWER-PC/PC SECTION (I)
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Computer Products Update - CPU Report

Weekly Happenings in the Computer World

Issue #15

Compiled by: Lloyd E. Pulley, Sr.

***** General Computer News *****

>>Interplay Sets Waterworld Games <<

Interplay Productions says it has purchased the licensing rights to produce and develop video games and CD-ROM software based on the upcoming feature film Waterworld.

Due out this summer, Waterworld stars Kevin Costner as the Mariner, an enigmatic hero who lives in a world without land. Jeanne Tripplehorn co-stars as his wife. Together, they must battle the ruthless Deacon, played by Dennis Hopper, and his army.

Interplay says it will produce two different Waterworld titles: an action/adventure game for the Sony Playstation, 3DO video game systems and PC CD-ROM computers, and a strategy game for PC and Macintosh CD-ROM computers.

Prices and release dates are pending.

>> Oracle Confirms Apple Buyout Bid <<

Software publisher Oracle Corp. confirms it has held talks with other companies on ways to buy Apple Computer Inc., but that the plan has failed so far because would-be partners didn't want to participate.

Noting rumors have circulated for months that database maker Oracle planned to buy Apple with a partner and carve it into software and hardware divisions, the Wall Street Journal observed this week, "Industry watchers have said Oracle wanted to keep Apple's software for use in its interactive-television services."

Oracle CEO Larry Ellison said this week in an interview on the national TV show "Charlie Rose" that his firm has no continuing discussions with either Apple or Lotus Development Corp., another company watchers say Oracle wants to acquire.

>> Microsoft, Wang Form Alliance <<

Microsoft Corp. and Wang Laboratories Inc. say they have formed a broad, multi-year technical, service and marketing alliance that aims to bring improved document imaging and workflow management capabilities to Windows users.

Under the alliance, Wang's desktop imaging and object controls will be incorporated as standard features into future releases of Windows 95 and Windows NT, and image controls will be included in the Visual Basic development tool. Additionally, the two companies will work together to accelerate the deployment of workflow automation software as a mainstream application for client-server computing.

Microsoft and Wang will also cooperate in the definition of work management APIs (application programming interfaces) that will enable applications to use workflow functions. The APIs will be open and available to all vendors, say the companies.

Wang will also develop and market Windows NT versions of its imaging and workflow server products to complement Microsoft's BackOffice suite of Windows NT server applications.

Joseph M. Tucci, chairman and CEO of Wang, adds, "This alliance will have a dramatic impact on the acceptance of workflow and imaging technology. Our partnership will bring Wang's leading imaging software to millions of people. With Microsoft, we will make document imaging a pervasive and inexpensive mainstream application and accelerate the deployment of workflow as a widely used business productivity tool."

>> Compaq, MITAC Set Joint Venture <<

Compaq Computer Corp. has announced a joint development agreement with MITAC International Corp. of Taipei, Taiwan, to develop and manufacture consumer desktop computers.

Products resulting from the alliance are slated for introduction in the second half of 1995.

Compaq says it will continue to manufacture its Presario consumer desktop PCs in its factories in Houston, Texas; Erskine, Scotland; Singapore; Shenzhen, China; and Jaguariuna, Brazil.

>> IBM Cuts ThinkPad Prices <<

IBM Corp. has lowered prices on several of its ThinkPad notebook

computers by up to 14%.

The price cuts cover four models in the premium 755 series, including the 755C and 755CD, a CD-ROM unit with video, telephony and infrared capabilities.

The affected ThinkPad models are available in 12 configurations, covering several screen styles, hard disk sizes and processor types.

System prices now range from \$3,099 to \$6,349.

>> First Info/LA Kiosks Unveiled <<

Santa Monica, California, and North Communications have unveiled their first two Info/LA multimedia touch-screen kiosks.

The kiosks feature a touch screen with full-motion digital video, stereo sound and an on- screen guide that speaks in English and Spanish. The units are designed to highlight and describe Santa Monica's various governmental programs and services.

Santa Monica is the first local government in the Los Angeles area to participate in Info/LA. Since 1989, Santa Monica has operated its own information service, the Public Electronic Network (PEN).

North Communications, based in Marina del Rey, California, designed, developed and installed the new kiosks for Santa Monica.

>> AMD Delays Pentium Competitor <<

K5, Advanced Micro Devices Inc.'s next-generation microprocessor intended to go up against rival Intel Corp.'s Pentium chip, is being delayed. The company now says K5 won't be available generally until early 1996.

AMD officials said the company will attempt to mass produce K5s this year for Compaq Computer only, with which it has signed a supply agreement.

Two reasons were cited by AMD spokesman Chuck Malloy for delaying K5 mass production:

-:- AMD is enjoying extremely good sales of '486 chips. (It recently added three major Japanese PC manufacturers to its '486 list of clients, and a major U.S. counterpart is expected to join in the next few months).

-:- The cost and time needed to develop the manufacturing steps for K5 mass production are bigger than originally anticipated.

The chipmaker said it expects the K5 delay will lead to higher turn-over in 1995 because it will be able to sell more '486 chips than it would have if it had converted a 486 plant to K5 production.

>> CERT Says SATAN Creates New Hole <<

Network watchdogs at the Computer Emergency Response Team say SATAN,

that controversial program released on the Internet last week to help bolster security, has introduced a break-in vulnerability of its own to thousands of computers.

SATAN (System Administrator Tool for Analyzing Networks) was intended to let operators of Internet computers check for security lapses, and thousands of users have downloaded the program.

"But" writes The Wall Street Journal this week, "SATAN allows hackers to gain control of any computer that uses it," according to an advisory posted by CERT, a group of security experts who monitor incidents on the Internet.

CERT's latest advisory warns users of the vulnerability and instructing them how to plug the security hole in SATAN.

>> SATAN Attacks Texas System <<

A Clear Lake, Texas, Internet access provider had to temporarily shut down some computers last week after a digital attack by intruders using the new SATAN software.

Phoenix owner Bill Holbert said, "These guys can come in and literally take control, get super-user status on our systems. This is not your average piece of shareware."

Silverman reports the attack began about 9 p.m. Wednesday. "Technicians watched for a while and then turned off the machines at Phoenix that provide 'shell' accounts, which allow direct access to a computer's operating system. The computers used for SLIP or PPP access -- a direct telephone connection to the Internet -- were not affected.

Holbert said the system was back up Thursday afternoon after some security modifications. "It actually taught us a few things," he said. "I've begun to believe that no computer network is secure."

>> Digital Ships 100,000th Alpha <<

Digital Equipment Corp. says it has shipped its 100,000th Alpha system, and that total product and services revenues from the Alpha system family have surpassed \$3 billion.

"This milestone clearly illustrates market acceptance for Digital's high-performance 64-bit Alpha RISC systems," says Robert B. Palmer, president and CEO of the Maynard, Massachusetts-based computer maker. "For example, Digital has shipped nearly 13,000 AlphaServer 2100-class systems in the past 12 months. At this rate, we expect to have reached \$4.5 billion worth of Alpha systems and services before our major competitors -- HP, IBM and Sun -- ship their first 64-bit system."

In addition to traditional commercial and technical computing applications, Digital says it is realizing volume and revenue growth from such new areas such as video-on-demand, micromarketing and online analytical processing.

>> Role-Playing CD-ROMs Planned <<

HarperCollins Interactive is joining forces with The Markle Foundation, a non-profit educational organization, and software developer Thinking Tools to co-publish a series of CD-ROM simulations.

HarperCollins says the new PowerTrip series will provide role-playing simulations based on public, social, political and economic issues, including political campaigning, foreign relations and the environment.

Each title will place players in the role of a central decision-making character, allowing them to customize their goals and make decisions. Users will be able to live the experiences of a candidate seeking the White House, a defense minister trying to prevent a war or an environmentalist trying to save a rain forest.

The first title, scheduled for release this fall, will be based on the presidential election campaign process.

The Markle Foundation was established in 1927 as a non-profit grant making foundation and has focused work since 1969 on the expanding role of communications media and interactive technology in people's daily lives.

>> New Copier Doesn't Harm Books <<

Xerox Corp. has unveiled a new photocopier for libraries and other institutions that aims not to break book spines or bindings.

The company notes that the Xerox Bookmark35 Copy Station is designed so that the edge of its copying surface slopes at a 35-degree angle to match the natural contour of an open book. When copying pages, users in libraries, schools, universities, law or government centers don't have press the book flat to obtain acceptable copies.

According to Xerox, the Bookmark35 can generate up to 35 copies per minute. The unit can copy pages as large as 17 by 17 inches, odd-size originals or three-dimensional objects. The copier can be accessed by coin or card.

The base version of the Bookmark35 sells for \$8,820. Xerox will begin taking orders on May 1.

>> Firm Offers Audio Via Internet <<

A year-old Seattle firm called Progressive Networks is set to invite broadcasters, other sound-oriented companies and interested consumers to sample audio-on-demand services through the Internet.

The product, dubbed RealAudio, will enable, for instance, a local radio station to make its newscasts or sports play-by-plays accessible to someone living in another state anytime that person wants.

Reports say the ABC and National Public Radio networks plan to make their newscasts available on the Internet using the technology, which Progressive Networks is to formally introduce at the National Association of Broadcasters convention in Las Vegas this week.

The system comes in two parts, one program used at the transmission side of an audio program and one at the listening side. Progressive

Networks is giving away the listening side software, which may be used on Windows-based PCs, Macintoshes and Unix-run computers. It is also making deals with companies that make programs for browsing the World Wide Web portion of the Internet to include the listening software in their products.

The firm intends to sell the transmission side program and other specialized software to companies that wish to present audio through the Internet.

Also, Progressive Networks CEO Rob Glaser said the company will operate a centralized spot on the World Wide Web for sound-oriented companies, including the radio networks, to present their material. In time, however, Glaser said most audio providers will operate their own services.

The software runs best with a computer that has a modem connection speed of 14,400 bits per second. During a demonstration in New York Friday, Glaser showed that a computer powered by a fast 486, Pentium or PowerPC chip can run both the audio signal and another program, such as a word processor or spreadsheet, at the same time.

>> Adobe Offers Scanner Software <<

Adobe Systems Inc. is announcing its new high-end program called Acrobat Capture for converting paper documents into a computerized format that keeps the appearance and style of the original.

To be released next month at a suggested retail price of \$2,995, the Windows-based software makes use of scanning devices and the optical character recognition (OCR) technology to convert a paper page into an electronic format.

"The user can then search for information, send the electronic version across a computer network or store it on a device such as a CD-ROM," The Wall Street Journal reported this week. "Unlike earlier OCR products, Acrobat Capture's format retains the typefaces, graphics and layout of the original document."

>> Lotus Ships Updated ScreenCam <<

Lotus Development Corp. has started shipping an updated version of its ScreenCam software.

Like its predecessor, Lotus ScreenCam for Windows 2.0 is an interactive tool for creating ad hoc and formal audio/visual presentations. Users can capture screen activity, cursor movements and sound into an integrated file that can be saved and distributed across local and wide-area networks as well as the Internet.

The new release provides several enhancements, including captioning, sound compression, editing and integration with Lotus' Notes/FX product. The software publisher reports that ScreenCam sound compression, using algorithm technology from VocalTec Inc., can reduce file size by as much as 50 percent. Soundless movies with ScreenCam captions can reduce file size by as much as 90 percent.

ScreenCam Release 2.0 for Windows costs \$99. Users of the previous

Bellevue, WA 98007
206-649-9800

IBM Requirements

CPU: 486SX-20
RAM: 3 megs
Video: SVGA, 640 x 480, 256 colors
Hdisk: 1 meg
CD-ROM: Double-speed recommended
OS: Windows 3.1
Misc.: Sound card, mouse

Macintosh Requirements

CPU: 68030 Color Mac
RAM: 2.2 megs
Video: 13" 256 color monitor
Hdisk: 1 meg
CD-ROM: Double-speed recommended
OS: System 6.0.7

by Frank Sereno

Sierra On-Line has consistently produced interesting and innovative educational software. "The Lost Mind of Dr. Brain" is their newest title and it does nothing to diminish Sierra's hard-earned reputation for excellence.

The premise of the latest Dr. Brain sequel is that Doctor Thaddeus P. Brain has developed a machine which transfers intelligence from one being to another. Dr. Brain attempts to transfer some of his knowledge to his lab rat, Rathbone, but an accident transfers too much of his intelligence. The player's task is to unscramble the good Doctor's brain by solving a series of puzzles involving the ten regions of the brain.

"Dr. Brain" was developed using the theories of Dr. Howard Gardner regarding multiple intelligences. These intelligences are verbal/linguistic, logical/mathematical, visual/spatial, bodily/kinesthetic, musical, interpersonal and intrapersonal. Each of the puzzle sets will require a combination of the intelligences for completion. Solving the puzzles will exercise and enhance these intelligences.

Solving puzzles is usually not regarded as a fun activity by many children, but "Dr. Brain" presents the puzzles in a unique and interesting way. For example, the Train of Thought puzzles involve docking colored balls in the correct order by routing them over railroad tracks. The Synaptic Cleft puzzles have a cowboy theme as the player must round up neurotransmitters depicted as mooing cows. The puzzles are full of great animations and sounds. Humor is used abundantly to entertain the player and to maintain his interest. He is rewarded with visual and verbal encouragement upon solving each puzzle. If a player has difficulties, he can get hints for the beautiful Dr. Elaina.

"Dr. Brain" has three levels of difficulty. Some puzzles on the Novice level are appealing to and can be solved by players younger than twelve. For example, my six-year-old son, Jeremy, had great fun and reasonable success playing Train of Thought and Synaptic Cleft. Expert level can be a challenge to many adults and Genius level is extremely difficult. "Dr. Brain" can certainly provide much stimuli and fun for all.

The graphics are truly outstanding. The artists paid attention to the small details. The characters are excellently drawn and well-defined. The visuals are filled with bright and interesting colors. The animations are incredibly smooth and lifelike. Once again Sierra has used its patented lip-synching technology. The sound is not only synchronized with

the character's mouth, but the mouth also forms the natural movements for the sound.

The voice characterizations are topnotch. Rathbone uses a different dialect for each puzzle region and each is excellent. "Dr. Brain" is filled with many humorous sound effects which were expertly digitized. The music is very enjoyable. The graphics and sounds make "Dr. Brain" an outstanding multimedia experience.

"The Lost Mind of Dr. Brain" uses a very intuitive point-and-click interface. Audible help is available within the program. On-line documentation provides excellent information for using the program. One area of deficiency is that little information is included about troubleshooting problems running the program. Technical assistance is available from Sierra via telephone, fax, the Sierra BBS and on-line services.

Children (and adults) will find "Dr. Brain" to be an entertaining experience for many, many hours. There are hundreds of fascinating puzzles to solve. The humor that infuses the program will keep them coming back for more.

Many educational programs require that the child do many repetitive exercises or drills to build skills. For example, he may have to do dozens of math problems. Such programs can be excellent but the drills can become tedious and soon become an exercise of memorization. "Dr. Brain" encourages the child to think creatively. Puzzles have more than one solution and different thought patterns are used to find these solutions. The program also teaches children about the parts of the brain and the thought process as Dr. Elaina explains the puzzles and offers verbal encouragement. This program makes learning fun!

Sierra On-line's educational programs have always offered excellent value. "Dr. Brain" does have a mid-range price but it offers many hours of learning fun. The program is also backed by a 30-day money back guarantee. The only condition is that the returnee give Sierra the reason for the return. If you are looking for a fun learning multimedia challenge for your child or yourself, you cannot go wrong by purchasing "The Lost Mind of Dr. Brain."

Ratings

Graphics	10.0
Sounds	10.0
Interface	9.0
Play Value	9.5
Educational Value ..	10.0
Bang for the Buck ..	9.5
Average	9.67

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A few months back, I reviewed two educational titles from Sanctuary Woods. These were "Real World Math: Adventures in Flight" and "Word Stuff." Both titles are quite good. Surplus Software is now selling these titles at the low price of \$19.95 each. You can contact Surplus Software at 1-800-753-7877. The catalog I.D. is SKU-CDRWMA for "Real World Math" and SKU-CDWSTU for "Word Stuff."

That's all until next week. Thanks for reading!

Anticipated Release:

How is OUI packaged?

Can I order it now?

Can I beta test it?

--Dvorak Development

Should you switch? Our Windows 95 preview proves it's not just a new interface. Architectural changes smooth multitasking and speeds communications.

Grab something solid and hold on tight. That rumbling you hear is the sound of Windows 95 coming down the pipeline. Although the final version is not due till August, Windows 95 is already shaking up everything on the computer landscape. The results of our tests of a beta version of Windows 95 (Beta 2, M7 build 224) will show you why. Its now up to build 440 with build 347 being the preview version.

Windows 3.1 is inarguably one of the most influential programs ever written. It has been installed on over 50 million machines, inspired several thousand new applications, and shifted the direction of computing. Windows 95 is even more ambitious. It has the potential to usher in a new array of hardware, ranging from PBX telephone systems to wireless personal communicators.

The first step, however, is to win the desktops of Windows 3.1 users. That's not as straightforward as it might seem. Windows 95 isn't simply an upgrade; in some ways, it's a radical departure. This is most evident in the user interface (UI). Microsoft has changed even the most basic components. New symbols--a straight line and a box--replace the minimize and maximize buttons. Program Manager is now an obscure option you set in system.INI. And a single button, Start, guides you through your session, eliminating the desktop clutter of program groups and items.

DOS Is Dead, Long Live DOS

Windows 95 is also the first version of Windows to shield you from DOS. It bypasses the command line, booting right into a graphical environment. By largely avoiding DOS's real-mode restrictions and by using new 32-bit protected-mode drivers (VxDs), Windows 95 solves many performance and compatibility problems. True, Windows has sported 32-bit protected-mode drivers since Version 3.0, but Microsoft has enhanced the drivers in Windows 95. For example, Windows 95 loads and unloads drivers dynamically, whereas 3.1 could load VxDs only when the system initialized. Windows 95 also enhances the DOS file system. The new VFAT (virtual file allocation table) driver lets you create filenames and directory (folder, in Win 95 parlance) names of up to 255 characters, but it still supports traditional 8.3-style filenames.

You won't have to replace all your old software, though. In fact, in our tests, DOS applications ran better than they do in Windows 3.1. Windows 95 frees conventional memory by implementing many features, such as network and CD-ROM drivers, as virtual device drivers rather than as TSRs or real-mode DOS drivers.

For an early look at the coming class of Win 95-based applications, try out the Accessories included with Windows 95. Only with new applications will you be able to use the new common dialog boxes. Unlike those in 3.1, the new common dialogs let you perform more tasks. For example, you can create and rename directories and files inside each dialog. There's an icon beside each file and folder, so you know the source application at a glance. And the new common dialogs support Windows 95's new long filenames. Of course, only applications written to support Windows 95 applications can take advantage of these features. Although they'll run under Windows 95, your 3.1 applications will still look like, well, 3.1 applications.

Simple UI masks the power within Program Manager, with its sea of icons, does nothing to help you navigate. It's easy to lose minimized windows. And organizing the desktop is a challenge.

So when Microsoft set out to redesign the Windows interface, its mantra was, Simplify, simplify. When we loaded Windows 95, we knew Microsoft had largely succeeded. Tools are packed in two strips along the bottom of the screen, and the simplest device of all--the Start button--lies between them.

Windows 95 also helps you navigate with Shortcuts, which link documents to applications, and with Wizards, which walk you through such key setup operations as installing hardware.

One-Click Tasks

The Start menu is the cornerstone of the Taskbar, which is Win 95's launcher. When you load Windows 95, the Taskbar shows only the Start menu. When you run programs, Windows 95 adds buttons to the Taskbar to represent each active program. When programs are inactive, they sit on the Start menu. (During installation, Windows 95 adds to the Start menu any applications it detects on your hard disk.) To switch applications, click a button--once. With Windows 95, you can launch programs on the Start menu with a single mouse click.

While the Taskbar speeds up task-switching, the Start menu is an organizational tool. The Start menu lists only a few basic commands--Help, Find, Run, and Shutdown. Its layout encourages you to organize programs into logical groups and to use documents as the main organizing device. For example, the Documents section of the Start menu lists the last 15 files opened, so you can get most work done without opening a program menu.

To run applications, you select Programs--by default, the first item on the Start menu--which opens a secondary menu listing Windows program groups, including Accessories and Explorer. This is the same type of group/icon structure as in 3.1 but with different icons in different groups. (To run the Program Manager shell instead of Explorer, edit the shell=explorer.exe statement in SYSTEM.INI to read shell=progman.exe.)

More Mousetraps

Clicking on the right mouse button almost anywhere--even over the blank desktop--opens a pop-up menu with context-sensitive options. Passing the cursor over many objects opens a tips box that describes the object's function. Even running the cursor to the screen's edge has a purpose: restoring a hidden Taskbar.

However, the mouse has become more powerful at the expense of keyboard shortcuts. Even use of the familiar term keyboard shortcut is a problem in Windows 95. Shortcuts now refers to icons that open documents associated with specific applications. In fact, Shortcuts can point to most anything on the network, including OLE links.

Fortunately, most of 3.1's keyboard combos still work: Ctrl-Esc opens the Taskbar, Ctrl-Alt-Del restarts your system, and Alt-Tab opens the task-switching menu. Many key functions, such as returning to the desktop, require mouse input.

Cruisin' the Desktop

Windows 95 provides several ways to navigate programs and documents on your desktop or on the network. You can press the Start button to display a menu of programs and documents. Or you can use a browsing program, the

Explorer, to manage both the file system and Windows program groups. (Confusingly, the Windows shell is also called Explorer.) Lastly, you can delve into the icons that appear on the opening desktop, My Computer and Network Neighborhood. These icons retain the feel of Program Manager but add power. For example, both files and programs appear as icons, and you can click on any file linked to an application to start it. So you can use this view instead of the Start menu to run programs.

With Win 95's browser, the Explorer, you can drill through folders (the new name for directories) to run documents and perform housekeeping. You can delete and undelete files, change attributes, and print files or copy them to another disk. You can even highlight multiple files and send them all to the printer at once, which you couldn't do in 3.1. Right-clicking on any icon opens a context menu tailored to the icon's properties. For example, a document's context menu lets you print or view the document. However, if an application isn't written to the Win32 API, it won't display such properties and instead will show only the program version.

Speaking of Dialogs

Windows 95 also overhauls common dialogs, bringing important functions to the fore; all Windows 95 native apps reflect this. For example, File Open and File Save As dialogs let you create new folders, as well as open and save files. Print dialogs let you specify only the number of copies and print range options, relegating such options as paper tray to secondary dialogs. Also new: the Recycling Bin. It saves deleted files, displaying the file's original location and the date and the time you deleted it. You can even set the size of the Bin to control the number of files it can store.

The Name of the Game

One big change in Win 95 is its support of 255-character filenames. To create a FAT-based system for long filenames that's compatible with older applications, Windows 95 pulls some impressive tricks. It hides long filenames in additional FAT directory entries with attributes, such as volume labels, that only Windows 95 applications can read. And because the OS stores long filenames in the entries immediately following standard 8.3-style filenames, the long name is likely to be in the disk buffer and retrieved quickly.

One flaw: Root directories have a fixed number of entries, and long filenames tend to take up several entries. Therefore, you risk running out of root directory space. So run Windows' Scandisk frequently to reclaim orphaned long-filename entries.

Keyboard users, prepare to go cold turkey

If you haven't yet shaken your dependence on the keyboard, be prepared to go cold turkey. With Windows 95, keyboard habits will only hold you back. The key to learning Windows 95 is to let the mouse run rampant. Run it over every button and object in sight. Click with the left and then the right. Help windows pop up everywhere. And context menus immediately display options that Windows 3.1 buried under layers of menus. Windows 95 will run your current Windows 3.1 applications, but don't expect to make the switch without a snag. You'll spend hours relearning how to handle basic tasks, such as switching among programs and arranging your setup options. Those first few hours are like finding your way in a dark room; but before long, you'll find the new digs are a lot like the old place:

Windows 95 rearranges icons and tools but doesn't sacrifice anything valuable.

Mighty Mouse Rules

The first order of business is to come to terms with the Start menu, which appears when you press the Start button. You can live without this menu if you want to run everything from desktop icons, as you did with Program Manager. But the Start menu is an improvement over Program Manager, and as soon as you're comfortable with the way it works (remember: mouse only), you'll be rearranging the menus.

To change your Start menu options, choose Settings in the Start menu. Click on and drag program icons from one folder to another to rearrange this menu. However, it's all too easy to take Microsoft's clean initial organization and create a mess, so exercise caution. Your Start menu can be merely a long list of all your applications or an intricate tree of carefully pruned menus.

Once you have a feel for the Start menu and have run a few applications, you'll want to customize the Taskbar along the bottom of the screen, where push buttons represent active applications. The Settings menu for the Taskbar provides an Auto hide mode, which presents you with one of your first setup decisions: Do you want a clean screen or one on which the Taskbar is always in view? Try the Auto hide option, for no other reason than to explore Windows 95's greater mouse sensitivity. You'll also want to experiment with the option to auto-close viewer panes when you open a new one; your desktop can get messy fast if you don't select auto-close. Of course, you will often want multiple panes open for dragging and dropping document launches and file operations.

When the Taskbar is in view, simply move the mouse away from it to make the Taskbar disappear. To make it reappear, bring the mouse back to the extreme edge of the screen. The effect disconcerted us at first, because you end up calling the Taskbar when you're reaching for a scrollbar. But in time, we found that the Windows 95 UI requires more careful mouse control, and quick access to the Taskbar is just one of the rewards for developing that control.

You'll want to extend the Taskbar's real estate before you launch more than three applications; otherwise, the Taskbar squeezes the buttons, making it impossible to read the name attached to each. To master Taskbar control, you'll need to glide your mouse very slowly along the Taskbar's borders until the sizing arrows appear. (We say "slowly" because the mouse must rest on the button if it is to open.) No borders guide you through this; you have to find the hot spot yourself.

What's in a Filename?

You also have to work harder to master the relationship between files. Several changes make it easier to work with files, though. Filenames can be as long as 255 characters. While you still can't use some punctuation marks in a filename, you can use blank spaces and mixed case. Of course, if an application wasn't written to support long filenames, none of these new naming conventions apply. Instead, Windows 95 will truncate the filename, giving it a unique name that uses the standard DOS 8.3-style format.

File extensions are essential to Windows 95 links between documents and applications, and they remain unchanged when you view them in a DOS

directory. However, you'll see a lot less of them: The default browsing option hides extensions, identifying documents with a combination of icons and the first part of the file name. File dialog boxes separate filenames from extensions to discourage you from changing extensions.

In theory, you'll rarely need to know an extension, because Windows 95 automatically detects the source application, though you'll still have to create associations for nonstandard extensions. In addition, you can use Shortcuts, which are like the Mac's aliases or OS/2's shadows. You could, for example, create shortcuts to key network subdirectories and collect them in a single folder on your local drive, which you couldn't do under 3.1.

A document icon and its Shortcut look identical--except the Shortcut icon contains a small arrow. The problem? Even with the telltale arrow, it's easy to copy a Shortcut when you really want to copy a file. You can't use a Shortcut unless the actual file is available.

Win 3.1 Rears Its Interface

After you've gotten your sea legs with the Taskbar and Start menu, you'll want to rearrange the items on the Start menu. Select Start Menu from the Settings menu and you return to familiar ground. The browsing view reveals the Windows origins behind the new interface: This view organizes the Start menu like Program Manager. You can drag items from Programs groups to the main menu or create new folders for the Start menu.

At first, working with the Start menu in this view is disconcerting because the toolbar seems like a file-management program, but you're working only with icons. Get used to it. Windows 95 uses this type of browsing window repeatedly. The main menu bar items won't change from one type of object to another, but menu choices will change.

In the Settings menu, you can stick with just one browser whose contents Win 95 updates every time you select a new folder. Or you can open a new browser for each new folder. The default setting in our prerelease version resulted in new browsers proliferating like bunnies. While it's easy enough to restrict the display to a single browser window from the Settings option on the Start menu, you can't drag icons from one folder to another unless both are open.

Even a cursory exploration of a hard disk can quickly lead to a mess, with more than dozens of browser windows open. To clean it up, you must minimize all windows from the Taskbar's context menu, then reopen the windows you still want to view. So if you thought that Windows 95 would eliminate the need for desktop shells or utilities, think again.

Exploring Options

An expanded version of the browser, Explorer, replaces File Manager (which is still available). Explorer has a cleaner design than File Manager, but it's far from a complete file-management solution. You view all disks in the left pane and folders or files in the right. Copying a file to a disk or folder that isn't in view forces you to open a second Explorer and then align the two windows so both are in view.

The main menu is so clean you won't even find a command for copying files. To copy a file when the target folder isn't in view, you can right-click on a file to open a context menu and copy the file to the clipboard. When you've opened the target folder, paste the file. In time, it's something

we may get used to, but for now, shelling out to DOS will remain a popular option for file maintenance. Renaming is easy in Win 95, but viewing a directory using wildcards, formatting a disk, and copying files are easier in DOS.

Incredibly, only two commands rest on the Explorer's Tools menu. Instead, you find file-management tools by clicking on the object that needs work and then right-clicking to open a context menu. For example, the Explorer in our beta-version menus amazingly lacked disk format commands; to format a floppy disk, you must open a DOS session and type the format command.

In time, we'll probably be working faster as a result of this shift to stronger object orientation. But it will take time to make the adjustment.

New desktop digs take getting used to

Even in its beta form, the Windows 95 user interface is a clear overall improvement over that of Windows 3.1. Still, it takes time to adjust to your new digs. The new user interface is particularly well suited for Windows novices, who'll find it easy to navigate and customize once they learn the ropes. However, power Windows users will come smack against its limitations earlier in the game. For example, if you've got half a dozen or so applications running, the Taskbar truncates the names. Power users may also tire of the forest of menus that cascade off the Start button.

The best way to master the new interface is to learn the properties of each icon and to practice manipulating each icon with the mouse. You can move these objects to action by using context menus that open when you right-click on an icon. And you can accomplish many more tasks by dragging icons than you could in Windows 3.1. For example, you can now print a document by dragging a file to a printer icon.

However, probably the most controversial aspect of the new interface is the change in the upper-right corner of a standard window pane. Windows 95 replaces the minimize and maximize arrows with a straight line and a box, respectively, and you now click on X to close the window. However, it's much too easy to mistakenly close a window when you want to maximize it.

The Explorer replaces File Manager. You run the Explorer by selecting an option on the Start menu or by clicking on the My Computer icon that appears separate from the Start menu. Each Explorer window provides only a single look at a disk, so you will often run multiple Explorer windows to perform basic disk housecleaning. Microsoft made some file operations unreasonably difficult, so plan on a strong market for replacement shell programs. Symantec expects to ship its new version of The Norton Desktop about 90 days after the release of Windows 95.

Jargon

context menu: A pop-up menu that opens when you right-click on an object. It lets you set properties or perform tasks unique to an object.

Explorer: The browser that replaces File Manager. It lets you view files as icons, not just as text labels.

Start menu: The new home for program icons, replacing Program Manager. The Start menu pops up when you click the Start button.

Shortcut: A Shortcut is a reference, or link, to a Windows 95 object, such as a file, program, or device. Windows 95 tracks the object, so if you

move it, the Shortcut will still work. For example, you might create a Shortcut to a network printer and drag a file to the Shortcut to print the file.

Taskbar: The Taskbar along the bottom of the screen replaces the Task List in Windows 3.1. It has a button for each active program, and you click the button to switch to the program you want.

File functions

File Function	WIN 3.1 file manager	WIN 95 Explorer
Accessing commands	Most commands are located on pull-down menus at the top of window	Most commands are on context menus that you access with a right-click of the mouse.
Viewing directories (foldders, in Win 95 parlance)	You can view multiple directories, each in its own window, using Windows' Multiple Document Interface (MDI)	You can view only one folder at a time. To view serveral, you must open additional Explorer sessions. Explorer doesn't support MDI.
Viewing file contents	You view the contents of a file only by running the associated application.	You can view file contents by selecting one of the view options on the file icon's context menu.

Stay or Go?

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Jacquelyn Gavron

The Clear View

Upgrade Quandary

Despite beta pains, the verdict remains: Windows 95 outshines 3.1.

The big question on everyone's mind is whether to upgrade to Windows 95. The next big question, of course, is when will Windows 95 ship? Particularly in light of Microsoft's corporate confession that it now will not hit the street until August. No surprise there. While the performance and feature set of the beta version (Beta 2, M7 build 224) we tested were stable, Win 95 still has its share of bugs. We had trouble installing Win 95 on some test systems. It lacked drivers for various adapters. And Plug and Play worked--only erratically.

Thumbs Up

But that doesn't change our overall impression about the value of upgrading. Yes, it'll take time to get used to your new desktop digs. But with Win 95's totally revamped user interface, you're no longer adrift in

a sea of icons. It's clean, streamlined, and more mouse-centric than its predecessor. (Relax: Alt-Tab, Ctrl-Esc, and Ctrl-Alt-Del still work.) And most of your current software--even device drivers--will run as well under Windows 95 as it does under 3.x, if not better.

In addition, Win 95 provides nearly unlimited system resources. The new communications subsystem supports higher data-transmission rates. And Windows 95 is the best out-of-the-box network client around, with its support for such protocols as NetWare, NT, PPP, SLIP, and TCP/IP for Internet access. (TCP/IP-stack vendors might complain, but users won't.)

Win 95 will also create opportunities for third-party vendors. For example, there'll be a clear need for utilities that "humanize" the system Registry, which is the central database of configuration information. The Registry replaces WIN.INI and SYSTEM.INI, among other setup files. If you thought the .INIs were tough to negotiate, the Registry is positively impenetrable, though a wealth of system information resides there. You can configure some of it, such as display fonts, with the Control Panel, but not all.

The Taskbar has its limitations, too. For example, when you have more than six or seven applications running, the Taskbar truncates the buttons so you can't read their labels. Another third-party opportunity.

Among the stream of utilities, you can also expect to see some that will let you view multiple folders (called directories in Win 3.1); out of the box, Explorer displays only one at a time.

Make Old Desktops New =====

Brian Livingston

The Critical Distinctions

Undocumented Tip

If your desktop is perfectly tuned, you don't have to change it for Win 95.

When you install Windows 95 over a working copy of Windows 3.1, the setup routine adopts any special settings you had in your WIN.INI and SYSTEM.INI files. This should preserve the colors and other settings you customized for your system.

One thing that doesn't look the same, however, is the Program Manager group you've painstakingly arranged. Because Microsoft has developed a new user interface for Windows 95--based on a new shell called Explorer--the old Program Manager does not show up automatically.

Your program groups still exist, but they are buried deep down in the new Start button menu. However, you can use the following method to place your old group windows right on the Windows 95 Desktop--an undocumented procedure you won't find in the Windows manual.

Step 1: Click on the Start button. Then on Programs, then Explorer.

Step 2: When the Explorer window opens, expand the C:\WINDOWS folder by clicking on the plus sign until you see the Programs folder under the Start Menu folder. This is where Windows 95 stores your old Program Manager groups. (If your copy of Windows 95 is in a directory other than C:\WINDOWS, substitute the correct name for your system.)

Step 3: Click on the plus sign beside the Programs folder. This should reveal folders for your former groups, such as Accessories and Startup.

Step 4: Using the right mouse button, drag each folder you want onto the Desktop. When you release the mouse button, you see a pop-up menu. Do not select the Move Here option! (That would move the folder to a different location on your disk.) Instead, click on Create Shortcut Here. This creates an icon (or Shortcut) for that group on your Desktop.

Step 5: Repeat Step 4 for all the program groups you want to carry over to your Windows 95 Desktop. When you're done, click the right mouse button over any blank spot on the Desktop. On the pop-up menu that appears, click on Line Up Icons to make your new icons fit into a compact grid pattern.

Now you can double-click on any Program Manager Group and use all your icons with even greater ease than you could in Win 3.1.

Put your compatibility concerns aside

Windows 95's preemptive multitasking, while welcome, is no big surprise: Windows for Workgroups 3.11 is also a preemptive multitasking operating system. However, Windows 95 adds such new features as the ability to dynamically load and unload virtual device drivers (VxDs) and has a full Win32 subsystem.

Windows 95 can also run several different types of programs. On the application front, this includes DOS, Win16, and Win32 programs. Each Win32 program runs in its own individual address space, while all Win16 programs run collectively in one address range. As a result, one bad Win16 application could corrupt and crash other 3.1 programs.

Windows 95 supports DOS drivers, Windows VxDs, Windows 3.x device drivers, and miniport drivers, which are a new type of device driver. A miniport driver is a generic driver developers customize to support a specific device, such as a SCSI, network, or graphics card. As you can imagine, miniports make developing drivers easier. A virtual device driver is a module of 32-bit code that runs in protected mode. Some VxDs deal specifically with hardware, but they can also supply operating system functions, and this is how we use the term in this section.

Windows 95's preemptive multitasking support protects applications and drivers alike. Device drivers are trickier, though: Because they deal with the hardware directly, a bad one can bring down your system.

Separate but Equal

Under Windows 95, each DOS application runs in a separate virtual DOS machine (VDM) with its own protected memory range, which gives each VDM the illusion it has sole command of the PC. This feature has been in Windows Enhanced mode since Version 3.0. It works like this.

Windows uses the processor to trap those program operations that could compromise system integrity. When Windows 95 encounters such operations--like the direct manipulation of hardware--it either closes the

virtual machine causing the problem (usually without affecting other running programs) or virtualizes the operation. For example, when several DOS machines are writing to screen, each thinks it has the screen to itself. But in fact, Windows grabs each DOS machine's screen writes and translates them into GDI (Graphics Device Interface) calls. This allows Windows to change fonts for text mode applications.

The Service Entrance

Both Win16 and DOS programs rely on many basic system services, including file I/O and memory management. As with Windows for Workgroups 3.11, VxDs provide most of these services.

Win32 operations, too, rely on these VxDs. However, Windows applications also rely on three sets of Windows services--KERNEL, GDI, and USER. These services and all Win16 and Win32 programs run in the System VM. The System VM is the virtual machine environment in which programs and subsystems execute. The System VM always runs in protected mode, although it makes calls to v86 mode sessions.

KERNEL also routes some of these calls through to real mode DOS code running in a protected-mode v86 session. KERNEL is the Win32 DLL that manages basic, low-level system services for applications, such as allocating memory dynamically and handling processes. USER is the DLL that manages windows, performing such functions as creating and moving windows, executing dialogs, and so on. GDI, the Windows graphics engine, performs all graphical functions, including drawing lines, scaling fonts, managing colors, and printing documents.

KERNEL, USER, and GDI all have 32-bit and 16-bit components. Most KERNEL services are 32-bit. GDI and, especially, USER rely more on 16-bit services, which ensures compatibility with Windows 3.1 applications because Windows 3.1's 16-bit subsystem is not reentrant. Simply put, the Win16 subsystem executes only one task at a time. (The Win32 subsystem can execute multiple threads simultaneously.) In addition, some Win16 applications expect Win16 system services to behave in certain ways, delivering messages in a particular order, for instance.

Aside from compatibility, another reason Windows 95 retains some 16-bit services is memory conservation: 16-bit code is smaller than 32-bit code. If Microsoft had made the transition to 32-bit code entirely, Windows 95 would not be able to run in 4MB of memory. Because Microsoft clamored about its small footprint even before Windows 95 had a code name, the company chose an architecture that delivers on its promise.

32-Bit: Boon or Bust?

Windows 95 introduces support for Win32 programs, which have several advantages over Win16 programs. Win32 applications can address up to 4GB of memory, as opposed to Win16's 16MB. And Win32 programs are made up of threads that an application can spin off to perform asynchronous tasks such as saving a file and searching for a network resource. The application launching one thread is then free to undertake another task.

However, Win16 applications can rock the boat, especially those that aren't cooperative and don't regularly yield CPU resources to other programs. Win32 apps are susceptible to such interference because they share with Win16 common system services in the KERNEL, GDI, and USER.

Windows Entry

Microsoft uses a single semaphore, Win16Mutex (formerly Win16Lock), to block multiple threads from entering the Win16 subsystem at once. A semaphore is a programming flag, or handle, an application must grab to enter the Win16 subsystem. Because Win16 does not support reentrance, Windows 95 makes sure only one application obtains the handle at a time.

Windows 95 sets the semaphore whenever an application enters the Win16 subsystem and clears the semaphore when the application exits the subsystem. Because Win32 programs rely on Win16 system services, the semaphore blocks them too if they try to use Win16 services when the subsystem is already in use. Win16Mutex doesn't affect Win32 programs that are not trying to execute system services. Ditto for file, communications, and network I/O. Still, Win16Mutex doesn't block DOS programs either. Theoretically, though, protection problems can arise because Win32 programs rely on a potentially unstable Win16 subsystem. If you're worried about this, which you shouldn't be (see The Players, where we put Win 95 to the test), then use Windows NT 3.5 instead.

Windows 95 employs one last device for backward compatibility: Single Application Mode. This mode lets you fall back on DOS if you have a Windows application that won't run under Windows 95. To invoke it, check a box on the application's Properties sheet. Executing a program in Single Application Mode restarts the system in real mode. However, it doesn't load the protected-mode drivers, so you lose some support for CD-ROMs, networks, and long filenames. (Later builds have introduced greater compatibility and internal support)

Beta pains now, compatibility tomorrow

If you're concerned about whether Windows 95 will be compatible with your Windows 3.1 applications, don't be. Initially, we thought Win16Mutex would interfere with Win32 programs. And it did slightly--but only with some doing on our part. We wrote an Excel for Windows NT macro that opened and closed windows and moved them around continually, causing the Win32 program to behave erratically. But overall the benefit of Win16Mutex, including its compatibility even with unstable Windows 3.1 applications, was worth it.

Window Pain

During a solid month of testing, we found it difficult to tell whether a Win16 or Win32 program was running. Few 32-bit programs--the NT versions of Microsoft Word and Excel, Shapeware's Visio32, NCSA Mosaic, and SlickEdit-- showed visible effects of multithreading. The fact is multithreading takes place behind the scenes, and you won't see the advantages with many applications. But the effects of multithreading are evident with some applications, such as the NT version of Picture Publisher, which let us edit one complex image while the program was rendering another.

Win16 programs brought down the entire system (early builds only) more often than Win32 applications did. For example, while the Windows 95 Explorer, a Win32 application, crashed several times, it rarely crashed the entire system; the system displayed a dialog citing Explorer as the culprit, then simply closed the Explorer.

Party on the Hardware

Windows 95 runs DOS and Windows 3.x device drivers. However, running DOS

device drivers imposes a performance penalty, because Windows 95 must switch to v86 mode and map virtual addresses. It also must trust DOS device drivers to party on the hardware without crashing the system. (Devices that party on the hardware, like device drivers, program hardware directly instead of using an operating system service to do so.) To mitigate problems with DOS device drivers, Windows 95 uses VxDs to service devices, such as CD-ROM drivers and the Microsoft NetWare and IPX/SPX drivers, that ran under 3.x in real mode.

VxDs have other benefits as well. Windows 95 can dynamically swap VxDs to disk when physical memory is full, which makes memory management more flexible than it is using DOS drivers. Windows 3.1 couldn't do this. Another benefit of VxDs: They aren't segmented into 64K blocks. Programs must organize 16-bit code in 64K blocks, or segments. But 32-bit VxDs can manage code and data in blocks of unlimited size and don't need to organize code in segments at all, though they can when handling 16-bit components. For example, the VFAT VxD handles many file I/O calls from DOS sessions and returns 16-bit segmented pointers to the I/O calls.

Finally, because VxDs run in protected mode, a driver that crashes won't necessarily bring down the entire system--in theory, at least. In practice, many Windows 95 VxDs perform such critical functions that when they crash, the system goes down as well. For example, when VMM (the Virtual Machine Manager, which Win 95 implements as a VxD) crashed during our tests, Windows 95 tried to continue running the system, to no avail. We had to press the reset button on our test system. Windows 95 had a bit more luck keeping the rest of the system up when the networking drivers crashed, which was rare. Although, we worked with Windows 95 Beta 2 (M7 build 224), it's still hard to imagine that your system will be able to fully recover from VMM crashes.

Dirty Software, Beware

Windows 95's increased reliance on VxDs affects DOS and Windows programs in other ways, too. Utilities, diagnostic tools in particular, that rely on long-established techniques like looking at specific real-mode addresses to detect system configuration information may not work anymore. Why? Because Windows virtualizes so much of the real-mode environment that the information it provides these applications is not accurate. For instance, an interrupt vector (the real-mode address of an interrupt request) in a DOS window may not be where Win 95 actually handles the interrupt. In fact, all hardware interrupt vectors in a real-mode session are false. The VMM handles them by dispatching interrupt vectors to an interrupt handler, which usually runs in protected mode. This won't be a problem with most productivity and development software, but it may be a problem for some utilities.

If you use a device that only real-mode drivers support, you can't use Windows 95's VxDs.

Sullied Setup

The driver for a Matrox MGA adapter that came with Windows 95 crashed a test system, the Micron PowerStation P90PCI. This wasn't the biggest problem we faced. We had more trouble installing Windows 95 on some systems, such as our Dell 466/MX with a SoundBlaster, than on others. The Dell system wouldn't boot after we installed Windows 95, citing a failure to load network-related VxDs. As it turned out, the problem was with the sound card, not the system. We commented out the real-mode SoundBlaster drivers from AUTOEXEC.BAT, and the system was stable. In addition, some

drivers, including those for the Xircom PCMCIA Ethernet cards and the Hayes Optima PCMCIA modem, were missing from the beta we tested. Microsoft says Windows 95 will include them when it ships.

Is DOS Dead?

One of the biggest myths about Windows 95 is that it eliminates DOS and the 640K memory ceiling DOS imposes. In his much publicized book, *Unauthorized Windows 95*, Andrew Schulman disputes whether Windows 95 abandons DOS and demonstrates that it does indeed use real-mode DOS code (running in a protected-mode v86 session) to provide some OS services.

This was startling, as Adrian King's book, *Inside Windows 95*, published by Microsoft Press, said Windows 95 eliminated DOS. When we questioned Microsoft, it agreed with Schulman that Windows 95 would enter v86 mode to provide some OS services.

That Windows relies on real-mode code running in a v86 session isn't necessarily bad. If it ain't broke, don't fix it. Windows 95, despite its architectural similarities to Windows for Workgroups 3.11, offers many system-level improvements. Long filenames are one, system resources another.

When many applications are active, Windows 3.x can run out of resources, such as device contexts (DCs), because it stores them all in one 64K heap. A device context is a system resource that Windows applications use to perform display operations. Resources include regions, which are data structures that draw graphics on-screen, and font structures, which are data structures that supply information on fonts.

Windows 95 maintains this 64K heap, but doesn't use it nearly as often as Windows 3.x did. Instead, Windows 95 allocates as many resources as it can on 32-bit heaps, which address up to 4GB; so you're not going to run out of address space, which was easy to do using 16-bit 64K heaps. For example, instead of having roughly 200 device contexts systemwide, Windows 95 offers 16,000. Instead of about 200 menu and window handles (combined), Windows 95 can handle about 16K of each.

Legacy support belies big changes

Many people have jumped on the real-mode bandwagon, beating to death the significance of the legacy architecture in Windows 95. But after pounding a beta version of Win 95 regularly for a solid month, we found that Win 95 multitasking and protection are indeed a big improvement over those in Windows for Workgroups 3.11. The biggest difference is that Windows 95 uses virtual device drivers (VxDs) to perform such key functions as controlling the network, CD-ROM, or SCSI bus. VxDs also improve both multitasking and the general integrity of the operating system. For example, Win32 applications can preemptively multitask, and there's little chance that bugs in these Win32 apps will crash other applications because each application has its own protected memory address. Finally, 32-bit versions of some system services, such as the TrueType Rasterizer, boost their performance as well.

So if you're disappointed because Windows 95 doesn't completely can the old Windows architecture, don't be. And cynics take note: Devices, such as Win16Mutex, that Windows 95 uses to ensure that it's compatible with your current applications work in your best interest, not against it.

Jargon

reentrant: Reentrant code executes simultaneously in more than one task without causing errors.

VxD: A virtual device driver is 32-bit, protected-mode software that can manage a single resource, such as a serial port or display. VxDs provide these services globally to all programs running under Windows 95. Win 95 VxDs load and unload dynamically; Win 3.1 VxDs, on the other hand, load only during system initialization and stay in memory even if you no longer need their services.

VMM: The Virtual Memory Manager is the Win 95 VxD that controls such key system services as allocating memory and routing calls from Win 95 subsystems to the VxD service an application has requested.

Stability of Win 95

If you do this... ...you get this

Crash a Win32 application	Win 95 closes the faulty Win32 application without affecting any other programs you're running.
Crash a Win16 application	Win95 closes the Win16 application. However, other Win16 apps and Win16 subsystems may become unstable, because they run in the same address range as the problem applications.
Crash a DOS application	Win16 and Win32 applications won't have any problems. However, if the faulty application directly programs hardware (as a driver does), your system could crash.

Win 95 Cuts RAM Cram
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Larry Seltzer

The Critical Distinctions

Memory Managers

Windows 95 won't kill memory managers, but they must learn new tricks.

Reports that Windows 95 marks the end of memory managers are exaggerated. Memory management software from such vendors as Helix Software, Qualitas, and Quarterdeck Office Systems certainly won't be the critical tools they once were for many of us, but they can still play a role in some cases.

Virtual Memory Reigns

Windows 95 doesn't always need DOS memory managers thanks to its heavy use of VxDs. The VxDs Windows 95 uses to control such devices as CD-ROMs, networks, and sound cards don't occupy conventional memory the way real-mode drivers do in Windows 3.x. With fewer real-mode drivers vying for space in the 640K region, there's less need to use memory managers to free up space.

Here's the catch. Windows 95 will still support TSRs and DOS device drivers, and at some point you might have to use them. Windows 95 might lack a native driver for a particular device (like a tape backup unit), or a real-mode driver might consume more conventional memory than you can spare. After all, when you load a TSR in AUTOEXEC.BAT or a DOS device driver in CONFIG.SYS, a copy of each program loads into conventional memory--and stays there.

For ultimate backward compatibility, Windows 95 can run in Single Application Mode, which reboots the system into real mode and runs a version of DOS. Because Single Application Mode does not load Windows 95 VxDs, which support devices like networking, CD-ROM, or sound, any applications that require them must instead use DOS device drivers or TSRs. They just might need memory-management software too.

Win 95 Retains MEMMAKER

Perhaps this is why Microsoft has decided to include MEMMAKER in Windows 95. MEMMAKER, developed with Helix Software, can be quite useful but doesn't recover as much memory as third-party memory managers. For example, we tested Version 3.04 of Helix Software's Netroom with our beta of Windows 95, and it recovered noticeably more memory on a system that already had 600K of conventional memory free. While this shows that memory managers can still have an impact, it also shows the diminishing magnitude of the problem they solve. Don't be surprised to see memory management vendors moving into other areas, with Quarterdeck leading the way with its forthcoming Web server.

.INI is out, the system Registry is in

The familiar story goes like this: You pop in a hot new add-in card, power on your system, and moments later your PC bombards you with a series of crippling failures and resource conflicts. Windows has never managed hardware well. Instead, it's relied almost exclusively on information you had to enter to configure peripherals. Win 95's Plug and Play changes all that.

Plug and Play is a set of specifications that let you add peripherals to your system without your intervention (without much, anyway). It does this in several ways. First, Win 95 detects the devices installed on your system, including the resources they need. Second, it configures devices dynamically. For example, if one device is using another's resources (or if Win 95 has reallocated them), Windows assigns new resources to the second device. Finally, PnP will still work with legacy peripherals that predate Plug and Play. The catch? Win 95 will not detect such devices automatically, so you'll have to configure them manually.

Peacekeeping Plugs

Win 95 contains a number of software components that play a crucial role in PnP. These include the configuration manager, the resource arbitrator, the hardware tree, enumerators, and device drivers.

Win 95's configuration manager is the heart of PnP. It builds a database of information about your system's configuration and tells the various device drivers what resources (I/O address, IRQ, DMA) it has assigned them. The resource arbitrator tracks all free resources in your system and allocates them to specific devices. When two or more devices request the same IRQ, for example, the resource arbitrator tries to identify free

IRQs. If Windows can't locate additional resources, when you boot your system the Add New Hardware Wizard opens automatically.

An enumerator is a new type of driver. Enumerators exist for any device in your system to which you can attach another device. This includes any type of expansion bus, like ISA, PCI, or PCMCIA, but also encompasses things like the keyboard controller on your motherboard. Enumerators traverse their respective buses, identifying and initializing each attached device during the boot process. The root enumerator performs this function for nonPlug and Play devices. A PnP-compatible BIOS serves as the enumerator for motherboard devices.

Of course, device drivers are nothing new. DOS and Windows 3.x have been using them for years. But most vendors will need to rewrite their device drivers for Win 95 to accommodate its new architecture. Gone are static, real mode device drivers (like the kind you load in CONFIG.SYS or AUTOEXEC.BAT). Drivers that support Win 95 load and unload dynamically, and run in protected mode. Their ability to unload means that these VxDs also release resources at the CPU's requests. When the configuration manager offers resources to Win 95 drivers, they configure the device accordingly, even if the resource they're assigned contradicts a device's default settings. (To support PnP, a device must allow Win 95 to override its default resource requirements. In the past, if you did this, a device typically wouldn't work.)

.INI Bites the Dust

Remember WIN.INI, SYSTEM .INI and application specific .INI files? Well, forget them. Hardware and software configuration information now resides in the Win 95 Registry. Win 95 retains old-style configuration files in the Windows directory to ensure compatibility with older hardware and software. Applications written for Win 95, however, must store configuration data in the Win 95 Registry, not in separate .INI files.

One of the more important parts of the Registry is the hardware tree. It is similar to a directory tree on your hard disk, but here the directories are buses and the files are devices. Win 95 constructs the hardware tree during the boot process. The hardware tree resides on your hard disk and in memory, so Win 95 can update it dynamically when you add, remove, or change devices.

Boot, Baby, Boot

A number of things happen when you boot a machine running Win 95. The machine starts up in real mode, the Intel 8086-compatible mode that does not allow access to virtual memory. First, the BIOS obtains information about motherboard devices from nonvolatile memory, usually CMOS RAM, just as it does today under Windows 3.x. It then configures each device accordingly. If it doesn't find configuration information for a particular device, it disables that device. Then the various enumerators begin their work.

The root enumerator reads the hardware tree from the Registry to determine the system configuration, identifying non-PnP devices and adding them to the hardware tree in memory. At this point, the OS processes the SYSTEM.INI file, which contains instructions to load static VxDs (old-style Windows virtual device drivers). Most non-PnP devices require real-mode drivers to operate.

Now, the bus enumerators spring into action. Each bus in the system has an

enumerator associated with it. The enumerators examine the bus for devices or descendant, or child, buses (for example, VL-Bus is a child bus of ISA). When it finds a device, the enumerator loads a static VxD for it, if necessary. When the enumerator finds a descendant bus, it launches yet another enumerator for that bus. (By now, Win 95 has loaded all real-mode drivers and static VxDs in memory, so the system switches to protected mode.)

On Planet Windows

Now, Win 95's configuration manager steps in. Although the enumerators have identified all devices on the system, they have only initialized those requiring real-mode drivers or static VxDs (most notably non-PnP expansion cards). All other devices are still dormant. The configuration manager loads any remaining enumerators. The enumerators then inventory all other devices and add them to the hardware tree.

Finally, the system loads protected-mode dynamic drivers for the PnP devices requiring them. If any conflicts arise between devices, the resource arbitrator tries to find substitute resources. If it can't find resources for any non-PnP devices, Win 95 starts the Add New Hardware Wizard when you reboot, prompting you for information about the peripheral.

That's the way things work in a perfect world, in which you have a PnP-compatible system and nothing but PnP peripherals. But here on planet Windows, there is a tremendous installed base of older legacy peripherals, and most systems don't currently have a PnP BIOS. In the next section, we examine some of the real-world issues that arise when you have to deal with both PnP and non-PnP devices in the same PC.

With Win 95, it's all work and some Plug and Play

To evaluate the promise of Plug and Play in Win 95 on the desktop, we enlisted the service of two machines, a Dell OptiPlex XMT 590 and a Packard Bell Legend 14CDT, both running Beta 2 (M7 build 224) of Windows 95. While almost every major vendor is working on PnP products, at the time this was written, PnP-enabled devices are in limited supply. (Win'95 is up to build 440 and PnP enabled devices are quite numerous.)

We started with some of the most glaring examples of the need for PnP: SCSI host adapters and sound cards. We installed two SCSI cards, Adaptec's AHA-1530P and Future Domain's PNP-1630 into our test systems. Win 95 recognized the cards in both cases, loading the correct drivers.

Win 95 will ship with device drivers for all kinds of devices. If Win 95 lacks the driver for the exact device you're using, it asks if you want to use a compatible driver (which might not support all the features). If it doesn't have a compatible driver, you click the Have Disk option on the Installation Wizard, then insert the disk that came with your device. Win 95 provided drivers for our test equipment, except the Crystalizer and the Intel TokenExpress.

No Separation Anxiety

Then we got a taste of the true beauty of Plug and Play. When we removed these two SCSI adapters and restarted Win 95, we did not get an error message. A quick glance at the Device Manager confirmed that the cards and their drivers were no longer present in the system. We pulled one other trick that would be exceedingly difficult (not to mention replete with

error messages) under Windows 3.x: We installed both SCSI adapters in the same system with absolutely no effort.

With other cards, things didn't work out so smoothly. For example, the Dell system recognized our Intel TokenExpress Pro network card, but Win 95 lacked a protected-mode driver for it. However, this card didn't work under Win 95 even when we executed the conventional, real-mode driver that came with the device. Intel said it expects that the final shipping version of Win 95 will include a driver for the TokenExpress Pro.

We also tried another Adaptec SCSI adapter, the AHA-1540CP. Win 95 detected this adapter twice, once by the SCSI enumerator and once by the PCI enumerator. As a result, the Win 95 hardware tree had two entries for it. This indicates that while Win 95's detection mechanisms are robust, they aren't infallible.

Next, we tested the only PnP sound card available at press time, the Crystalizer PnP sound card, from Crystal Computer. Win 95 identified and recognized the card, but lacked a protected-mode driver for it. So we booted the machine to the command line and installed the card as we would under Windows 3.1: by running an installation program with DOS-based TSR drivers or static VxDs. When we restarted the machine, the card worked fine. (At this point in time, the sound cards supported are too numerous to mention.)

Intel built Plug and Play into the PCI specification from the get-go, so it was no surprise that all the PCI adapters we tested worked smoothly.

For example, the Adaptec AHA-2940 PCI SCSI host adapter behaved as smoothly as its ISA counterpart. Then we pushed the envelope. We replaced the Dell's PCI graphics card, based on the Cirrus Logic 5434, with an STB PowerGraph Pro 64, a PCI card based on the S3 864 chip set. Instead of greeting us with garbled pixels or a black screen when we entered Windows, the system identified the card and started with a generic VGA driver. Then, thanks to the PnP features of PCI, which informs Windows 95 of the type of graphics chip set in use, Win 95 loaded a custom driver for the PowerGraph Pro. We had to reboot the system to initialize the driver. (Try doing this with Windows 3.1.)

This Old Hardware

This is where the picnic ends. While PnP is compatible with legacy cards in the sense that they can coexist in a PnP system, the PnP subsystem does not automatically configure legacy cards. That's where the Add New Hardware Wizard (a better name would be Add Old Hardware) comes in.

This Wizard lets you specify the hardware you want to install by selecting products from a list, organized by product category. It also offers to auto-detect hardware for you, but the process is long and imprecise. Win 95 consults an information file to determine which resources your hardware can use, compares this to the system's available resources, and then tells you how to configure the device to avoid conflicts. Win 95 contains information on hundreds of hardware products, but if you have an old or obscure device it doesn't support, you must figure out how to configure the card on your own.

Externally Yours

You also use Wizards to install such external hardware devices as modems, monitors, and printers. Plug and Play works with external devices designed

to provide information to Win 95 when queried. Although vendors have announced a number of such devices, few were available at press time. We did obtain a PnP-compliant monitor, the NEC XE 15.

Using VESA's DDC (Device Data Channel) specification, a graphics card should be able to determine a monitor's display capabilities and adjust its output to the monitor accordingly. DDC provides one-way communication from the monitor to the graphics card. On the display side, vendors can implement DDC directly in the monitor, as NEC does, or through the use of an adapter that plugs into the monitor cable. The graphics card must be DDC-compliant as well. Unfortunately, our test systems' on-board graphics did not support DDC, so we had to select the monitor settings manually.

Plug and Play also provides two significant features for portable machines: hot docking and the ability to switch resolutions on the fly.

Let's say you use your notebook with a docking station. The docking station may have built-in peripherals, such as a CD-ROM or network interface. Under Windows 3.1, if you undock the notebook and reattach it, you have to reboot the system to reinitialize the devices. With Win 95, upon reattaching the notebook to the docking station, the OS recognizes the devices, loads the drivers, and makes the devices immediately available for use.

We tested hot docking using a Texas Instruments 4000M notebook with a portable CD-ROM docking station, with mixed results. When we detached the notebook from its docking station, Win 95 removed the CD-ROM drive from the hardware tree. It also switched to power-saving mode as it sensed the absence of AC power. When we docked the notebook though, the CD-ROM remained unavailable until we rebooted the machine.

Many of us use notebooks connected to external monitors and manually switch back and forth between screen resolutions appropriate to the internal LCD or external monitor. Win 95 should save us this effort by supporting automatic resolution switching, but we were unable to get it to work in our tests.

PCMCIA devices (PC Cards) also support Plug and Play and function in the same way as expansion cards on a desktop. Win 95 loads appropriate drivers when you insert a PC Card and unloads them when you remove the PC Card. This is a significant improvement from Win 3.1, where to have this ability, you have to load every type of driver in the CONFIG.SYS file, using a ton of low memory in the process.

Applications Play a Role

For the full PnP experience, your applications must be PnP aware. They must dynamically adapt when you add or remove devices. For example, if you were using a communications program and inserted a PC Card modem, the Plug and Play manager would inform the application that a new communications device was available. The application could then attempt to use it.

As powerful as Plug and Play is, it still can't do everything, at least not in the beta of Win 95 we tested. You still have to restart your system when you change a graphics card's pixel depth. PnP doesn't work on PS/2-style mouse ports. While Win 95 can still use real-mode device drivers and static VxDs, devices that use such drivers will not be fully PnP-compliant. Although serial and parallel devices support PnP, you must refresh the Device Manager's hardware tree after connecting devices to those ports to initialize them. Finally, Win 95 will not ship with an

enumerator for the Micro Channel bus. IBM has said it would write the Micro Channel enumerator, but as even this company loses interest in this uncommon bus, it remains to be seen whether IBM will actually bother.

Plug and Play's promise is still in the future

While Plug and Play promises to put an end to the nightmare, the reality doesn't yet match the promise. Although PnP has the potential to revolutionize the way we use PCs, it will be a while before you fully realize all its benefits. The obstacle at this point is few people have Plug and Play systems and peripherals. Also, Plug and Play components and Win 95 applications (which will bear a logo to indicate they support Windows 95) will take time to proliferate. Until they do, expect some confusion, as well as resource conflicts, because you will still have to deal with legacy devices.

Learn to Let Go

While Win 95 makes installing and configuring legacy peripherals a bit easier, when compared with their PnP progeny, non-PnP devices are still rather inflexible. Case in point: You'll still have to manipulate tiny jumpers and switches to set resource usage. Win 95 and Plug and Play can't magically make those cards configure themselves, but will reserve resources for them, making conflicts much less likely.

Needless to say, when considering the purchase of a new peripheral, always get the PnP version; you'll thank yourself for it later. The same goes for systems. Don't buy a system that doesn't have a PnP BIOS. If you're not ready to buy a new system just yet, look into the possibility of upgrading your BIOS to support PnP (see the Critical Distinctions to the right, "PnP Upgrades").

So as you plan your PC and peripheral purchases for the coming year, make sure they include PnP products. They won't cost much more than conventional devices, and they'll make installation a great deal simpler.

Jargon

Enumerator: A driver that detects the devices and buses present at system start-up. It sends this information to the configuration manager, which assigns resources to them.

Legacy cards: Expansion cards that do not support the Plug and Play specification. In a PnP system, Win 95 assigns resources to legacy cards first.

Registry: The central database for Windows 95. It contains data on software and hardware configuration. The Registry replaces CONFIG.SYS, AUTOEXEC.BAT, and .INI files, but Win 95 keeps these files for compatibility with 3.1 applications.

Differences between Win 3.1 and Win 95

Technology	Win 3.1	Win 95
Device drivers	You have to restart your system after adding or removing devices.	Win 95 dynamically loads and unloads VxDs, so the system adjusts to changes without a reboot.

Hardware Resources	Win 3.1 can't always tell you which resources hardware devices are using.	The Properties for Computer dialog lists all resources in use including DMA channels, IRQs, I/O addresses, and more.
Peripherals	You configure peripherals manually. If there's a conflict, Win 3.1 may return an error message or simply not work.	Win 95 stores the resource requirements for PnP devices in a central database. If conflicts arise, the resource arbitrator substitutes resources.

PnP Upgrades =====

Joseph Moran

The Critical Distinctions

----- Pump That BIOS

Buy software upgrades and pop-in chips to get Plug and Play support.

To fully enjoy the benefits of Plug and Play, three pieces must be in place: Windows 95, a PnP BIOS, and expansion cards that support PnP. The first and last will be easy to acquire. The sticky part concerns the system BIOS. If your machine is less than six months old, you may already have a PnP BIOS. If your BIOS is PnP, this information appears on screen when you boot your machine. If not, you still might be able to retrofit your system to support Plug and Play.

Better Your BIOS

Most PCs shipped over the last few years have a Flash BIOS, so you can reprogram the BIOS EPROM chip without opening the case. In the past, there were rarely compelling reasons to upgrade your BIOS, except for the occasional bug fix. PnP marks the first time that Flash BIOS has value on a wide scale. Your system's documentation should indicate if you have a Flash BIOS. If it doesn't say, look at the chip: The word Flash will be printed on it. Then contact your system's vendor to find out if it's offering BIOS updates to support PnP.

That's what we did with a few vendors, with mixed results. Micron Computer offers PnP BIOS upgrades free for its 486- and Pentium-based systems; you can download them from Micron's BBS. Compaq says you'll be able to upgrade its recent Presario, ProLinea, and DeskPro models. But neither Gateway 2000 nor Dell had formalized plans at press time.

Less Flash, More Work

If your system lacks a Flash BIOS, or the vendor isn't offering upgrades, there's another option. Communica will offer upgrade BIOS chips for popular systems, though the list of systems wasn't final at press time. The company claims these chips will bestow PnP capabilities on older

systems. For \$79, you get a new EPROM chip customized for your machine, an extraction tool, and illustrated instructions. It's not as simple as a Flash upgrade, but if you're willing to roll up your sleeves, it's an easy and inexpensive way to add PnP support to your system. (Communications also offers a software fix for the Pentium bug, called RePent.)

If neither solution pans out for you, there's still hope. PnP-compliant cards will take time to proliferate, and by the time they do, you may be ready to get a brand new system anyway.

Win 95's IPX drivers speed NetWare connections

Windows for Workgroups 3.11 laid the groundwork for most network services in Windows 95. But in its pursuit of a universal client--Win 95 runs on almost any network--Microsoft has changed fundamentals of the OS, such as the way it detects and connects to remote resources. For example, Win 95 implements so many network resources as VxDs that it presents a common user interface no matter what the underlying network. Aside from performance, this is the most important benefit of Win 95's network architecture. Applications developers will use the virtual resources of Win 95 to write to common APIs that will work no matter what NOS you install.

Applications that rely on the new common dialog for file operations can take advantage of these new services instantly.

Layers of the Land

Win 95 implements networking services in layers of interfaces. These interfaces virtualize underlying services, such as picking data off the network card or reassembling a data stream from a series of Ethernet packets. Typically, there are a number of layers: API, MPR, SPI, IFS, the transport layer, the network interface card (NIC) driver. Which layers you use depend on such factors as whether or not your NIC driver is a VxD. For example, if it is a real-mode driver, the OS loads a Helper module, an additional layer.

The first layer is the API. Applications, such as the Windows shell (Explorer), rely on APIs to identify and request network resources. Win 95 passes API calls through the Multiple Provider Router (MPR), which routes requests for service to the appropriate service provider. Service providers are low-level interfaces to specific services, such as a messaging system like MAPI. Service providers take generically formatted API calls from applications or the OS, change the semantics to suit your implementation, and dispatch the request to the NIC driver.

Loaded LANs

Unlike WFW 3.11, which could load only two network drivers, Win 95 lets you log on to limitless networks at once. This is particularly useful for users who travel the Internet or for NetWare users who want to interact with other clients. If it's a WFW 3.11 client, simply select NetBEUI from the protocol list in Win 95's Network Control Panel. WFW 3.11 veterans might say they have been doing this all along, but their applications were not integrated in the OS as VxDs but rather were real-mode drivers that wasted hundreds of kilobytes of conventional memory.

To access files over the network, another layer comes into play, the

Installable File System (IFS) Manager. Network service providers call the Installable File System Manager for basic file I/O, and IFS routes an application's request to the specific file system. Network service providers also talk directly to the network's file system driver (FSD). The network transport layer gets FSD requests on to the network.

The Transporter

Out of the box, Win 95 supports three key network transports: IPX/SPX, NetBEUI, and TCP/IP (all are VxDs). You can continue using real-mode drivers like IPXODI.COM, but they tend to be slower than their protected-mode counterparts.

The network transport layer, which interfaces with your NIC, must use NDIS 3.0compliant drivers, which run in protected mode. If your network card supports only NDIS 2.0 or ODI real-mode drivers, you'll still need WFW's helper modules (NDISHLP.SYS or ODIHLP.SYS). These small drivers map network requests between protected-mode and real-mode drivers. Mixing real-mode drivers and multiple transports can be a headache, but you may have no choice if there's no VxD for your NIC. In most cases, the out-of-the-box, protected-mode IPX support should make installing on a network easier and faster.

Navigating the C:S

To integrate network services into the Win 95 shell, Microsoft created an enumeration API that queries network domains on available resources, such as servers, disks, and printers. A network provider can also provide details on the type of directory, implement its own view of the network for browsing, or notify the Explorer of such changes as moving or deleting a network directory.

Win 95 introduces Universal Naming Convention (UNC) pathnames, which identify a resource by its network location (such as \\MyServer\LaserJet) rather than by the local resource name to which it is mapped (LPT2, for example). UNC's continue working even when these mappings change.

UNC pathnames are also more intuitive than the drive letter convention. Although Win 95 includes the APIs you need to map, or redirect, local device names to network resources, Microsoft is encouraging developers to rely on UNC pathnames.

In addition to the basic network log-on and -off procedures, the Authentication API can return your user's home directory, change passwords, and cache an encrypted copy of the your password. (You can disable this last feature.)

Among Peers

Like WFW and Windows NT, Win 95 supports peer-to-peer networking. But Win 95 bridges the disparity between the two, which are at opposite ends of the security spectrum, by adding such features as user-level security to the basic share-level security in WFW. With share-level security, the administrator grants certain rights to all users who share that resource. Such users receive default access rights--read only, for example. With user-level security, you can specify which individuals (or groups) are permitted to access shared resources.

The security provider first authenticates your password, then passes the request to the Access Control List (ACL). In the ACL, you specify which

users (or groups of users) have a given level of access. If the person requesting access has permission to use that resource, Win 95 passes the request to VSERVER, which then allows the request to pass to the IFS manager or the print spooler. Windows 95 doesn't pretend to offer the sophisticated security found in Windows NT, but it does take a step in the right direction.

Win 95 steps up security and network controls

The testament to Microsoft's success at integrating network services into Win 95 is the lack of network utilities you have to master. The main network tool you'll use is the Network Neighborhood, a desktop icon Win 95 installs if it detects a network connection upon start-up.

From the Network Neighborhood window, you browse network resources the same way you navigate local resources from the My Computer window. For example, the top-level view presents the resources you're currently connected to--such as a NetWare server, other Win 95 clients, or a network printer.

The Network Neighborhood also shows a container for the entire network. A container is an icon that represents logical groups of resources. For example, you might have a container that includes printers, peer-to-peer clients, and file servers. In either view--the Network Neighborhood or the Entire Network Container--you can attach to a resource by clicking on its icon. The network provider layer then displays the log-on dialog. Both views also let you inspect folders, printers, and other shared resources.

Dialogs Do Networks

Win 95's common dialogs for file and print operations include a mini-Explorer for browsing the network. When you open a file dialog to save or retrieve a file, the default view shows the current folder (typically on C:) and also lets you scroll up the resource tree or repeatedly click on the up-one-level button until, at the highest level, you see one container for My Computer and another for the Network Neighborhood. Drilling down into the network, you'll see the same views and automatic log-on dialogs that you'll find in the Network Neighborhood window.

This mini-Explorer frees you from reliance on the clunky drive-mapping mechanism the pre-UNC interfaces use. Drive letters fail to help you remember where a drive letter maps. Worse yet, if your applications refer only to a specific drive, you may have a hard time finding your files when drive mappings change. The new interface eliminates that problem.

Relying on UNC's ensures that you save a complete description of a file's location; it only changes if your network manager renames a server. However, until applications universally employ common dialogs--or we see third-party dialogs that exploit the new APIs--you'll still need to map drives.

No Local Talent

The Win 95 shell also lets you share local resources. You can do this from most any view, including a common dialog, a desktop container, and the Explorer. Just open a resource's properties with a right-click, choose Sharing, then define a share name and access privileges for the given resource. But you still have to trek to the Network Control Panel to do the real work: to enable file and print sharing or user-level security or

to allow other users to share files on your local drive or permit them password entry.

The Network Control Panel isn't well organized. It lumps protocols, NIC drivers, client software, and network services in one long intimidating list alphabetically by type. Microsoft should have broken out each of these four types of settings. In particular, network services don't belong in the same windows with hardware drivers. Worse, most network changes you make from this Control Panel (including, ludicrously, logging on or off!) force you to restart Win 95. For a Plug and Play operating system this is very disappointing.

Remote Possibilities

Remote access is seamless in Windows 95. For example, we created a Shortcut to a network file while connected to our docking station. On the road, double-click the Shortcut (which you create by inspecting file properties) and Win 95 automatically dials the remote-access service and retrieves the file. Otherwise, you have to manually initiate remote connections to browse network resources. Mercifully, Microsoft makes it easier to abort large file copies. An animated dialog estimates the time remaining. On a few occasions, we started a file copy from a dial-in server but decided the 7-minute wait wasn't worth the bother.

Not only can you interact with the network throughout the shell, but Win 95 lets several users share one system and loads their preferred settings when they log on. Similarly, you can log on from another workstation and Win 95 will find you and load your preferences there, too.

Peer Glints

Win 95 does a good job integrating file and print sharing, so rivals such as LANtastic will have to up the peer-to-peer ante. However, larger networks will still want to rely on their existing network resources. Fundamental features such as user-level security require a more powerful NOS like NetWare or NT. For example, Win 95 clients don't maintain a list of all network users, so the OS must fetch such information as user-level security from a server.

Managing network nodes has never been easy, partly because no matter what NOS you use--Netware, LANtastic, WFW--network software has a hard time tracking the myriad hardware and software settings on DOS- and Windows-based systems. The extremely powerful Win 95 Policy Editor is a huge step in the right direction. The Policy Editor lets you define profiles for systems, users, and groups, setting rights to most any service in the Win 95 Registry. For example, you can define whether users can shutdown the system, run programs, use the default wallpaper, disable remote access, and share files. You can also determine if passwords must be a minimum length and if a domain server must validate passwords.

Be Big Brother

If you enable remote Registry editing, you can open and edit other systems' Registries from a distant machine. As with the Policy Editor, we had the unnerving sensation we had become Big Brother, despite user-empowering, euphemistic help topics such as "Enabling administrators to edit the registry on your computer."

If you administer a large, complex network site, you'll find Win 95's simple tools too cumbersome. To help, Win 95 includes an SNMP agent that

will let third-party developers (and Microsoft) hook sophisticated management tools to the Registry. Microsoft's offering, Server Management System, is a SQL Serverbased distributed management tool. Other options include HP's Open View, IBM's NetView, and UniCenter, from Computer Associates.

Boosting performance among peers

Win 95 is an impressive and well-behaved network citizen. We had few problems attaching to existing networks (save one frustrating afternoon when we had to unload the NetBEUI network support to attach to a NetWare server). Overall, though, Win 95 provides a reasonably easy-to-navigate network browser.

Microsoft also dispensed with some of the limitations of Windows for Workgroups 3.11. For example, unlike WFW, Win 95 supports multiple, simultaneous network connections, not just two. It also adds user-level security. Finally, Microsoft's NetWare support really shines: Its IPX drivers, which are VxDs, are easy to install and indeed offer transparent support for non-Microsoft networks.

Networking under Win 95 gets a real boost from more than just its improved network architecture. Plug and Play makes remote connections as simple as opening a remote resource--unless, of course, you didn't boot the network when you started the system. So much for 100% Plug and Play support.

Jargon

ACL: The Access Control List defines which users or groups can access shared resources.

NDIS: The Network Driver Interface Specification defines how network services interact with network card drivers. Windows 95 supports NDIS 3.1, which builds on NDIS 3.0 by adding Plug and Play extensions.

UNC: The Universal Naming Convention is a standard for naming files on a network. Instead of using drive letters (D: or K:, for example), UNC pathnames reflect the exact location of a resource on the network, such as \\MyServer\3rd FloorLaserJet.

Network performance

If You Do This ...

...You Get This

Share your workstation with other users.

Each person's preferences loaded automatically at log-on.

Use the policy editor to create configuration profiles for different types of users.

Easy-to-apply defaults that automate installing new workstations and creating users and groups.

Install the remote registry network service.

Client configurations that Windows 95 network administrators can open and edit remotely.

Rely on a NetWare or NT server on your network.

User-level security on Windows 95 clients, because clients rely on the network server for user and group account information.

User real-mode network
drivers.

Windows 95 helper software for
mapping requests from the Network
Provider or IFS manager to your old
network drivers.

Solve a Multitude of Ins
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Larry Seltzer

The Critical Distinctions

Microsoft Exchange Client/Server

The universal in-box is in Windows 95, and the server half is on the way.

Most e-mail veterans own more than one mail box and squander hours moving from box to box in search of messages. Windows 95 delivers Microsoft Exchange Client, a so-called universal in-box that should help deal with this problem. The new client lets you exchange mail with Microsoft Mail and other MAPI mail systems, CompuServe mail, and the Microsoft Network. And sometime in 1995, Redmond plans to ship the other half of the equation, the Microsoft Exchange Server (MES), a new messaging engine.

Post Office Problems

The move to a client/server architecture is long overdue. Both of today's LAN e-mail giants, Microsoft Mail and Lotus cc:Mail, run on vulnerable and antiquated architectures. When the client software posts a message, it writes a record in a large, shared database all users can write to. Consequently, any badly behaved mail client can corrupt the mail database.

Client/server is an infinitely better architecture for messaging systems than the shared database model. Here, the client and the server use a protocol to send and receive messages, so the client doesn't write to the database directly. Instead, the server performs all operations on the message store, or mail database. A client/server architecture also lets you beef up your messaging system by throwing more horsepower--in the form of additional memory or CPUs--at the server. As you might expect, the server platform for MES is Windows NT.

Bend the Rules

Run all essential messaging functions on the server and you free clients from tasks for which they're not really suited, and at the same time, you can reduce network traffic. Case in point: The server, rather than the client, should really implement messaging rules, which can filter or forward urgent messages. Today, clients handle this task.

Aside from adopting a client/server messaging architecture, Microsoft appears to be loading MES with such features as replication, a la Lotus Notes, support for X.400 and X.500 standards, a programming facility based on Visual Basic, rudimentary work-flow capabilities, an integrated group scheduling system, and tools to help you migrate from just about every other mail system known to IS. Get the message?

Revamped communications driver won't choke

If you're industrious, you've probably written a batch file to update the

files on your desktop system with those on a floppy disk. Windows 95 refines this process with the Briefcase, a data-synchronization tool.

Once you've created a Briefcase, you drag files to the Briefcase icon, then drop the icon into a floppy disk. When you return, drag the Briefcase back to your hard disk and choose Update. You can also move and update your Briefcase using a direct cable or a network connection.

To resolve differences between the Briefcase and desktop versions of files, Windows 95 searches the Briefcase Database, a hidden system file containing modification data. If both files have changed, Windows 95 will call a reconciliation handler to determine how to merge the files. However, Windows 95 won't come with handlers for specific applications--or with any reconciliation handlers, period. It will determine if a file has changed based on the file's date and time and ask if you want to overwrite the older file. It will then use handlers the application provides.

Reconciliation handlers for specific applications could, for example, determine whether a graphic appears in a document, which page it's on, and whether it's changed. Applications will have to register their reconciliation handlers in the Briefcase Database.

32-bit Comes to Comm

In Windows 3.1, transferring data at high rates was unreliable. That's because the communications driver in 3.1 (COMM.DRV) used only 2 bytes of the 16-byte buffers in the 16550A UART chip. (The UART converts incoming serial data into the parallel format that the PC's I/O and memory buses use.) If you tried performing other tasks while transferring files, the buffer overran with data, and your comm program requested a retransmission.

The revamped communications subsystem in Windows 95 eliminates this and other bottlenecks. The heart of this new subsystem is VCOMM. While the old real-mode COMM.DRV could drive only a standard serial port, VCOMM incorporates drivers for the serial and parallel ports. Third parties will also provide drivers for wireless and infrared ports. Another difference: VCOMM is modular. Unlike COMM.DRV, which performed such varied functions as managing AT commands from the comm program and controlling the UART, VCOMM controls only the serial port.

Windows 95 also eliminates the CPU comm overhead that hindered Windows 3.1. Under Windows 3.x, the communications driver let the application think it was reading incoming characters, one byte at a time, directly from the serial port. This caused tremendous system overhead. In contrast, Win32 applications deal directly with VCOMM, which can pass blocks of characters to applications.

You set up a modem under Windows 95 in much the same way you would a printer under Windows 3.1: Both have a universal driver that supports many models. Even if you don't have a Plug and Play modem, Windows 95's universal driver, Unimodem, tries to identify your modem. Or skip automatic detection and choose your modem from a list. If you let Windows 95 detect your modem, it enables default settings for such parameters as speed, speaker volume, and flow control, though you can override these settings. In either case, you configure your modem only once--no need to set it for each communications program.

Applications can use TAPI to access and share modems and other telephony devices. TAPI-aware applications need only issue basic commands, such as

"dial this number," and TAPI supplies the commands the modem requires. TAPI also supports connections in which an adapter in the PC emulates a telephone handset.

TAPI also resolves device contention. For instance, if you need to use the terminal program HyperTerminal, and Micro-soft At Work Fax is running in the background, TAPI relinquishes control of the modem to HyperTerminal, then returns control to Microsoft At Work Fax once the terminal session ends.

1-800-NETWORK

The Dial-Up Networking Wizard lets you specify the modem, the phone number, and the host server for a particular connection object. After you've configured the Dial-In Adapter (a.k.a. your modem) on the Network Control Panel, you set up the actual connections, which appear as desktop objects in the Dial-Up Networking folder. For instance, you'd have an icon titled "PPP Dial-in to Big_Old_Server."

The modem uses the PPP protocol for communications sessions over phone lines and also supports TCP/IP, IPX/SPX, and NetBEUI. Windows 95 supports many host server types: another Win 95 machine, an Internet host via PPP or SLIP, a Windows NT machine, Shiva NetModem/LanRover, or a NetWare Connect server. Remote access is part of the dynamic 32-bit protected-mode network architecture; you don't have to reboot or reconfigure your computer when you connect and disconnect with a remote host.

Win 95 totes empty briefcase, opening door to add-ons

To be honest, it was a chore getting this beta version of Windows 95 up and running on our test notebook: a Dell Latitude XP 4100CX equipped at different times with the AT&T Paradyne and Dell 14.4 PCMCIA modems. On our desktop system, a Dell OptiPlex XMT 590, we used an Intel SatisFAXtion 400e.

The Latitude refused to load Windows 95, citing a Protection Error. We wiped the Latitude's disk clean, reinstalled DOS 6.2 and Windows for Workgroups 3.11, then installed Windows 95. This time it loaded. We suspect a leftover real-mode driver from the software installed by Dell caused the initial conflict.

Briefcase O'Blues

The Briefcase shows lots of promise, but the beta version we tested (224) delivered little of that promise. The first time you create a Briefcase, a help window walks you through the process. Unfortunately, you can still wind up creating Briefcases on both of your computers instead of a single Briefcase on your notebook, or you might find yourself taking the files with you and accidentally leaving the Briefcase behind. Additionally, the Briefcase prompts you to copy the modified version of the files over the original. If you fail to update in this manner, the system makes a sometimes unwarranted assumption: "Skip, (both changed)."

Because Windows 95 doesn't currently include reconciliation handlers, it can't do tasks as basic as merging two text files. The Briefcase is supposed to check more than just file date and size; but currently, it's not doing anything DOS batch files can't do. Microsoft says future applications, such as Microsoft Office, will support the Briefcase Reconciliation API.

Third Party Hardy, In Time

Until your motherboard, BIOS, and peripherals all support Plug and Play, you must deal with Control Panel settings. Nowhere is this more true than with modems. In the meantime, Windows 95 users must live with Microsoft's COM port and modem detection code, which still have a few problems.

Initially, our PCMCIA modems wouldn't work. We checked resource allocation--COM ports, interrupts--and nothing looked odd. Windows 95 detected the modem correctly, but the HyperTerminal and Dialer applications failed to connect. The diagnostics supplied with the Modem Control Panel, which normally give port information such as interrupt, address, modem identifier, and UART type, also failed. The problem? Windows 95 Beta 2 (M7 build 224) did not contain the diagnostic code for PCMCIA modems, which will be in the final version.

On the desktop system, Windows 95 worked like a charm. Windows 95 detected an external modem on either COM1 or COM2, identifying the modem's brand, model, and the port it was using. We set the BIOS on our Dell notebook to use the external serial port as COM2 (instead of COM4). The external modems, an Intel SatisFAXtion 400e and a Hayes Smartmodem 9600 worked on these ports as well. Miraculously, this BIOS change also got the PCMCIA modems working. Although Windows 95 couldn't detect it, there had obviously been a resource conflict. Microsoft says it will add more and better COM port and modem detection before the final version of Windows 95 ships.

Once Is Enough

Once your modem's working, all TAPI-aware applications know it exists. You won't have to configure the modem separately for faxing, online communications, or dial-in networking. If you do need to change a configuration setting in an application, the application can store that configuration setting. For instance, if you have a dial-in router that can only handle speeds up to 9,600 bps, the modem isn't stuck at that rate when you start up a terminal program that wants to communicate at higher speeds.

We still had problems setting modem speeds. There's a tempting selection--Highest Possible--on the Modem Control Panel that wreaked havoc with both plain text and compressed file transfers. Characters per second bottomed out to 300, and there were numerous bad data and CRC errors. But when we tuned the maximum speed setting to a more reasonable value (38.4 Kbps for the Dell 14.4 fax modem), performance went from pathetic to amazing. HyperTerminal transferred a 180K text file at twice the speeds we were used to (3,600 characters per second, compared with 1,800 cps with the same SatisFAXtion modem under Windows 3.1), and we were able to copy files and perform other tasks simultaneously with no data errors.

Full Compatibility We tried logging on to a NetWare server via Shiva's LanRover and to an Internet host via PPP and had some trouble. First, you need to set up the Network Control Panel. You must set up the Microsoft Dial-Up Adapter with the protocols you want to use (in this case, an IPX/SPX-compatible protocol and Microsoft TCP/IP), then run the Make New Connection Wizard in the Dial-Up Networking folder, where you specify the phone number, which modem to use, and the type of server you're dialing into. Ideally, at this point you'd be done, and you could double-click on the connection object to dial in.

However, to log on to our local Internet service provider, we had to bring

up the Properties box on our connection object, "Configure..." the modem, then choose the Options tab on that Properties box to find the check box that specifies "Bring up terminal window after dialing." (Windows 95 doesn't automatically handle the login: and password: prompts on Internet Unix hosts.) Our beta copy of Windows 95 (224) only included Internet utilities for Telnet and command-line FTP, so we had to provide our own Gopher client, newsreader, and Web browser.

We had less luck with the Shiva LanRover. After many futile attempts, we discovered that with our setup (which required supervisor-level access on our test server) we'd have to dial in with a Windows 3.1 app, not with the built-in networking in Windows 95.

Win 95 promises revolutionary change

Mobile computer users will find a lot to like in Windows 95, but pieces are still missing. Until all leading applications support reconciliation, the Briefcase isn't much of an improvement over a batch file. And despite claims about full compatibility with remote hosts, there are a lot of hosts, each with its unique log-on method. Microsoft might see the future filled with peer-to-peer networks of Windows 95 and Cairo machines; the reality is that most of us will still be dialing into our NetWare servers for a good long time.

The good news is that with the new communications subsystem, the days of slow, unreliable data transfer are over. The protected-mode, 32-bit code path means that only your hardware limits your maximum speed. Because the VCOMM driver is modular, newer and faster hardware will be easy to integrate in your system.

The universal modem driver supports a broad range of modems and puts in place a foundation for future device support. Happily, the days of configuring your modem separately for each individual application are vanishing.

Plug and Play on the Way

The most important missing piece of the puzzle for mobile computing is Plug and Play. Testing with several machines and modems showed that the road from the present to Plug and Play won't be without potholes; you'll still spend time puzzling over resource conflicts and botched configurations. Even when PnP devices are in wide use, some problems will remain.

For some folks, the problem is not simply figuring out which resources are free; the problem is that their resources are all used up. We still have to live with the interrupt controller structure we've been stuck with since IBM released the AT.

Until the missing pieces arrive, the improvements to Windows 95 are evolutionary: It's faster, more robust, easier to use, and it replaces disparate third-party software with broad, integrated support. Once support arrives for all the new APIs and true Plug and Play systems are in place, Windows 95 will be revolutionary.

Jargon

Reconciliation Handler: A utility Win 95 calls when it needs to determine how to merge two versions of the same file.

Unimodem: The universal modem driver in Win 95.

TAPI: Telephone Application Programming Interface is a high-level programming interface that lets different applications share a single telephony device, such as a modem or PBX.

VCOMM The new communications driver in Windows 95. VCOMM, a VxD, incorporates drivers for the serial and parallel ports. Third parties can provide extensions for wireless and infrared ports.

Comm Technology

Comm Technology	Win 3.1	Win 95
Comm drivers	Its comm drivers virtualize ports to make applications think they're grabbing bits directly off the hardware, slowing performance.	Instead of virtualizing ports, Win 95's communications drivers pass incoming bits directly to communications applications.
Modem configuration	You must configure the modem for each communications application.	You configure the modem once, with the modem control panel.
UART Support	It uses only 2 bytes of the 16-byte buffer on the 16550A UART.	VCOMM uses the entire 16-byte buffer.

Microsoft Joins the Act

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Gus Venditto

Win 95's online client could have a larger audience than all its rivals combined.

Microsoft is doing more than overhauling the Windows interface and architecture: It also plans to include client software for its new online service, Microsoft Network (formerly Marvel).

The online network is tightly integrated with Windows 95. Once your desktop links up to the Microsoft Network, all online services appear as icons and folders. You use familiar browser windows--just like the ones on your desktop --to explore services. Right-click on any icon and you'll open a context menu that describes the contents in that area, its address on the network, and usage fees. (At press time, Microsoft had not set fees or identified any third-party content providers.)

More Offline than On

We looked at a prerelease version of Microsoft Network. The skeleton was in place, but the most interesting sections were roughed in, including the most ambitious parts: interactive kiosks with full-color graphics.

Microsoft also plans to offer a modified version of its Bookshelf CD-ROM, as well as standard bulletin-board discussions on topics ranging from desktop publishing to parenting in the '90s. However, discussions are sure to be more lively thanks to the easy access to graphics: You can embed files in messages. You can also embed Shortcuts that will make it easy for other users to locate files on the system. Drawbacks? Possibly performance. Microsoft Network will use complex graphics likely to slow things down.

32-Bit Applets

----- Anemic Windows Terminal gets hyper -----

At one time or another, we've all lambasted various Windows Accessories as underpowered and a waste of disk space. Still, we use them. With Windows 95, the Accessories are especially worth exploring, because until you've upgraded, the Accessories are the only Win32 applications on your system.

The communications program has improved the most. Renamed HyperTerminal, it replaces Windows Terminal--and not just in name. In Windows 95, all TAPI applications use the modem settings you define in the Control Panel. Because HyperTerminal supports TAPI, it has instant access to these settings. The foundation of the new communications architecture is VCOMM, a virtual communications manager.

VCOMM is more efficient than the one in Windows 3.1 because it eliminates system overhead. To support Windows 3.x communication programs, Windows virtualized all comm functions: applications believed they were reading data directly from the serial port, when in fact the communications driver was feeding them one byte at a time from a software buffer. If the CPU couldn't service the communications subsystem fast enough, it dropped characters. VCOMM reduces this overhead because it feeds data coming from the serial port to applications in large blocks, not one byte at a time.

The Phone Dialer utility, new in Windows 95, is TAPI-enabled, so you can use call-processing applications to run the next generation of modems, which will offer voice services and use digital signal processors (DSPs). Call-processing apps manipulate phone calls, usurping some of the functions a PBX server performed traditionally.

Done with DOS -----

The Win95 Accessories group branches into Multimedia Tools and System Tools. Multimedia Tools fill the same role they did in Windows 3.1, providing access to CD players, sound files and video clips. System Tools is a brand new group that takes advantage of DOS functions Windows 95 incorporates.

Because Windows 95, like Windows for Workgroups 3.11 with 32-bit file access turned on, has complete control of the disk and file system, you can safely run disk-maintenance programs within Windows. Rather than making calls to the Int21 DOS interrupt, Windows 95 applications call one of three VxDs: VFAT, for accessing hard and floppy disks; VCDFS, for reading CD-ROMs; or a 32-bit network redirector for using disks across a network.

Other accessories include WordPad, the successor to Windows Write; Paint, the renamed version of Paintbrush; and WinPad, an organizer that incorporates a calendar, to-do list, and address organizer. Microsoft wrote both WordPad and Paint using the Microsoft Foundation Class Library.

(WordPad announces this in its banner screen, and Paint has all the same features.) This gives both programs access to such capabilities as Print Preview and the ability to list the most recently opened files. In addition, both are OLE clients and servers, supporting in-place activation (formerly referred to as in-place editing).

Added accessories but fewer file formats

Windows Accessories fill a vital role: If you're ever stranded on a desert island with Windows, you can use the Accessories until you return to the real world and real applications. This is as true with Windows 95 as it is with Windows 3.1. This time, though, the Accessories are designed to guarantee that when you return to the real world, you're ready to work only in Microsoft applications.

Cut-and-Paste Dialing

Windows 95 is worth the price just to get your hands on HyperTerminal, the first communications package to take advantage of the changes in the Windows communications architecture. To see tangible evidence of Windows 95 improvements, use HyperTerm to download a file. During the process, HyperTerm's dialog box reports the time remaining and the time elapsed; the time display pauses as other tasks take place. When other activity stops, the clock jumps ahead, showing that the activity had interrupted only the clock display, and the download continues at the same pace as before.

The Windows 95 Phone Dialer lets you place a call by cutting a number from an application and pasting it into the Phone Dialer window. Phone Dialer also has a call log (for recording details on calls) and a speed dialer.

The familiar accessories Calendar and Cardfile merge in Windows 95, becoming WinPad, a basic PIM. WinPad fits right in with the Accessory philosophy: It does less than virtually every other product in the field. It is little more than a combination address-book/calendar program, with the addition of a to-do list. WinPad can import data from the Microsoft applications Windows Cardfile and Microsoft Calendar only; there is no export function. WordPad, the Windows 95 word processing accessory, retains the basic capabilities of Windows Write. It borrows a handful of devices from Word 6.0 for Windows, including buttons for opening, saving, and printing files.

WordPad also shares at least one performance characteristic with Word: It is exceptionally slow loading. WordPad reads text and Write's .WRI format but WordPad's default format is Word 6.0's .DOC format. Files saved in Word 6.0 .DOC format are about twice the size of text files and can only be read by the latest versions of Microsoft Word.

Notepad returns with all of its flaws. Even though Notepad now is Win32, it retains a limit on file size: We were unable to load text files larger than 57K, an oddity because Windows 95 is freed from the 64K-segmented-memory structure that hampered Windows 3.1. In our tests, we discovered that the Windows NT Notepad does not have this limitation, but incredibly they put the older version of Notepad in Windows 95.

Paintbrush Abandons .PCX

Windows 95 renames Paintbrush Paint and gives it a minor face-lift. But Paint is essentially the same limited paint program with another big limitation: It no longer reads or writes .PCX files. The Windows .BMP

format is the only format you can use with Paint.

System Tools, a group of utilities with DOS roots, joins the Accessories category. The System Tools menu includes Windows replacements for Backup, Scandisk, Disk Defragmenter, and DriveSpace. Each provides only the most basic functions in the category.

Scandisk searches for disk errors and fixes cross-linked files. It's a straightforward port of the DOS-based Scandisk utility, with the addition of Windows 95-specific help. For example, Scandisk identifies directory names that are legal in Windows 95 but are too long for DOS to recognize.

Disk Defragmenter is a simple disk clean-up tool. It gives you the impression that you can perform other tasks while defragging, but any writes to disk cause the defragging to restart from the beginning. Backup, an archiving tool written by Colorado Memory Systems, provides on-the-fly compression, differential backups, and file filtering.

Rumors, Anyone?

Finally, Windows 95 features new games, including a network chat line called Rumors. The most popular entertainment choice, however, may be the revamped CD Player. You can randomize an audio CD's play order, skim through a CD by playing only the first few seconds of each track, and create your own play sequence for CDs and then store it in a text file, CDPLAYER.INI.

More accessories, fewer options

The best current example of Windows 95's power is in HyperTerm: File downloads run at full speed, even while you work on other tasks. The improvements stem from a combination of Win 95's preemptive multitasking communications architecture and the new protected mode file system, so other communications programs will run just as well--once they ship. The best surprise in Accessories is the CD Player, which lets you create playlists for audio CDs. CD Player saves the playlist and automatically associates it the next time you play the disk--something your home stereo can't do.

The worst surprises are the changes Microsoft made to the range of available file formats in some of the Accessories. WordPad, the successor to Write, has adopted the Word 6.0 .DOC file format as its default: a shameless plug for Microsoft's own product line. If you already use Word 6.0, it's a welcome convenience. If you don't, it's a hassle. Those of us who use Paintbrush to occasionally view or edit a .PCX file will have to change our ways. Paint introduces very few changes, but Microsoft decided to snub the .PCX format completely. And WinPad, the new but underpowered PIM, imports only Microsoft Cardfile and Calendar data formats, and can export none.

Jargon

HyperTerminal: The communications program that replaces Windows Terminal, HyperTerminal inherits modem settings from the Windows 95 Registry.

Paint: Windows 95's replacement for Paintbrush no longer reads or writes .PCX files; it supports only the .BMP format.

WinPad: The PIM that replaces Cardfile and Calendar.

WordPad: The word processor Windows 95 includes. It builds on Write by adding a ruler and better font support (Write, for example, lets you use only three fonts at a time). By default, WordPad saves files in the Word 6.0 .DOC format.

System Tools

System Tools	Pros	Cons
Backup	Works with tape drives. Runs in the background.	Won't let you schedule backups in advance.
Disk Defragmenter	Executes in Windows. Runs in the background.	In background mode, you can't use apps that write to disk. It does not store the most frequently used files or directories first.
Scandisk	Fixes cross-linked files. Identifies disk errors within Windows.	Identifies filenames that will cause trouble for DOS apps but lacks a tool to fix the problem.

And They're Off

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Gus Venditto

Expect a wave of utilities that fill in the gaps in the Windows 95 shell.

If you had any doubt that software developers would deliver applications for the 32-bit Windows 95 environment, rest assured, at least some applications are on the way. Microsoft has even distributed a CD-ROM with early versions of pioneering programs, including Macromedia Director 4.0 for Windows 95, Micrografx Picture Publisher for Windows 95, Visio32, and StarWriter, an object-oriented word processor from Star Division.

We explored several of these 32-bit applications. The programs were in an early state, so we couldn't get a true feel for how fast they'll run. But we did get a taste of how applications will change to reflect the new Win 95 interface.

Taking a Tab on Tomorrow's Apps

Norton Utilities' SysInfo, for example, will be organized completely as a series of tabbed dialogs. You select a tab to view a report on system components, memory, display, and other aspects of performance. The program shows capacities and other percentage data as pie charts. If you select a detail and right-click, SysInfo opens a context menu, so you can probe for an explanation of the term.

QuickView, from Systems Compatibility Corp. (which makes OutSide In), is one of the first programs to bolster Windows Explorer. QuickView will enhance the context menu that opens in Windows Explorer when you right-click on a filename. Without QuickView, you can view only a small

"An enormous amount of information is still locked in paper form, preventing it from being used effectively on any of the rapidly growing electronic media available today," said John Warnock, chairman and chief executive officer of Adobe Systems Incorporated. "Acrobat Capture offers any business that has a heavy reliance on paper the ability to easily convert paper information into a more useful and efficient electronic format that can be distributed across existing networks to a large number of people. Together, Acrobat Capture and Adobe Acrobat software provide corporations and government agencies with a universal document archiving and distribution solution that can extend their reach to customers, reduce costs and ultimately help them be more competitive.".

Once converted into PDF by Acrobat Capture, paper documents are practically indistinguishable from any other document created by Acrobat software. All of the features available to users of Acrobat software can be applied to PDF files created by Acrobat Capture, including full-text searching, the ability to cut and paste text and graphics, security options, annotation capabilities and the ability to integrate with other files types, such as video and documents on the World Wide Web.

"Word for Word" Accuracy

Acrobat Capture software employs a variety of component technologies, including optical character recognition (OCR), font recognition, bitmap imaging and page decomposition, to ensure that the resulting PDF file exactly replicates the original document. If Acrobat Capture is not confident it has successfully recognized a word, it will embed a bitmapped image of that particular word in the PDF file, providing a document that is completely readable and accurate. Users can control Acrobat Capture's confidence requirements, imposing stricter limitations for critical applications or where document originals may have degraded due to handling. Acrobat Capture's ability to embed bitmaps for suspect words can eliminate the need for users to correct misrecognized text since the file is completely viewable and printable. Acrobat Capture software also places its best guess of a suspect word behind the bitmap in the PDF file, so the file is still fully searchable.

Acrobat Capture ships with 41 commonly used business typefaces, providing the ability to exactly or closely match the fonts of the original document. For applications requiring an exact duplicate of the original document, Acrobat Capture software can produce a bitmapped image of the entire document in PDF, placing the recognized text behind that image so the document is still fully searchable.

Network Ready

Acrobat Capture is designed for the casual or power user, providing the ability to process either one document at a time or a collection of documents queued up for batch processing. In addition to standalone use, Acrobat Capture can automatically processes image files across a network. Acrobat Capture can monitor network file folders for document images and automatically convert paper documents to PDF in an unattended mode. As a result, anyone on a network can access the capabilities of Acrobat Capture software.

Built-In Editor

Acrobat Capture software makes editing and error correction quick and easy with the Acrobat Capture Reviewer program which displays the file image in true WYSIWYG format. Users can approve or correct suspects and change

power and functionality of a telephone and a PC, saving you valuable time and money. Easy to use and easy to install, Phone Blaster includes an add-in board and highly integrated Kalman Ancilla communications software.

All-In-One Add-In Board

- * 14.4 bps fax/modem
- * High-quality, full-duplex speakerphone
- * Sound Blaster 16 audio -- 100% compatible with the thousands of titles written of the Sound Blaster platform

Integrated Telephone Management

- * Voice Messaging with remote access
- * 9000 passcode protected mailboxes
- * Caller ID support
- * Pager notification of new messages
- * Voicemail sending, broadcasting and forwarding
- * Hold music from MIDI, wave or CD audio

Full Featured Fax Functionality

- * Fax on-demand/fax back service
- * Fax broadcasting and fax forwarding
- * Automatic cover sheet generation
- * Signature and logo support

Bundled Software

- * Kalman Ancilla - Integrated telecommunications software
- * Creative TextAssist text-to-speech system
- * Creative's family of audio utilities
- * Free trial memberships to leading on-line services

Easy-to-Install

- * Simple installation for all software
- * One add-in board for all telecommunications

Upgradeable

- * IDE CD-ROM interface
- * Interface for WaveBlaster II, wave table synthesis daughterboard (see WVBLS2.TXT for more information on this card)

Features and Specifications:

Telephone Management

- * Unified message box lists voicemail, faxes, recorded conversations and files received via VoiceView
- * Support for up to 9000 passcode protected mailboxes
- * Integrated phonebook includes voice, fax and pager numbers in addition to mailing and e-mail addresses
- * Caller ID support looks up name and company of incoming caller
- * Pager notification of new messages
- * Tollsaver support
- * Remote access allows constant communications with Phone Blaster away

from the office

- * Hold music from MIDI, wave or CD-Audio

Data/Fax Modem

- * Modem data transfer or 14.4K/9600/4800/2400 bps
- * Data modem throughput up to 57.6K bps
- * Error correction - V.42 LAPM and MNP 4
- * Data compression - V.42bis and MNP 5

Fax Features

- * Fax-on-demand, fax broadcasting and fax forwarding
- * Signature and logo support for quickfaxes
- * Automated cover sheet generation
- * Rotating, scaling, zooming, half-toning and edge smoothing
- * PCX, TIFF and BMP support
- * Automated cover sheet generation
- * Rotating, scaling, zooming, half-toning and edge smoothing
- * PCX, TIFF and BMP support

Voice

- * Full-featured, full-duplex speakerphone with noise cancellation provides uninterrupted, clear communication between parties
- * Voicemail sending, broadcasting and forwarding
- * Primary and secondary outgoing greetings
- * Microphone/handset switching for recording
- * Speaker/handset switching for playback

Data and On-line Services

- * CompuServe WinCim launch button
- * VoiceView support - send data files during a voice conversation
- * Launch user-selectable data communications application

Specifications

- * 16-bit digital audio
- * 8- and 16-bit selectable stereo sampling and playback
- * Sample and playback rates from 5-44.1 kHz
- * Recording sources from MIDI, CD-Audio, line-in and microphone
- * Playback mixing of digitized audio, MIDI, CD-Audio, Line-In, Microphone
- * Input/Output gain select
- * DOS and Windows-based mixer utilities

Power Amplifier

- * 4 watts per channel (PMPO)
- * Load impedance 4 ohms or more

Interfaces

Built-In connectors for:

- * IDE CD-ROM drive
- * Wave Blaster II daughterboard for wave table synthesis

Onboard Connectors

- * Input - analog telephone, line-in, microphone, CD-Audio

Second Disclaimer. There are certain considerations you will not find here; this is a function of my system and the programs I run. You will not find exhaustive information on hardware problems...even Microsoft has trouble providing that. You will find absolutely nothing on networking or sound cards since I don't use either. And despite my emphasis on running W95, I have included various comments on specific programs, both Adobe programs and others I happen to use. But this is totally particular: you will find nothing on Lotus products, nothing on spreadsheets, and only a minimal amount on games. Put differently: this is not a Bible. It's a basic stay-out-of-trouble file.

Before You Install

I think this is all excellent advice! My principle is that you ought to be able to return to your existing Wins 3.X configuration. You'll need this information for several reasons. You may decide you hate W95. Or, even if you like it, you'll want to go back to a clean Wins 3.X system to install the final shipping product.

If you do not have a bootable floppy, make two now. I say that because a disk can mysteriously go south, and you don't want to be stuck. Easiest is to use the File Manager command to make a system disk (remember: make TWO!). Now go out to regular DOS and test *each* floppy in turn to boot your system. Next, you should add certain files to your floppies, although I sincerely hope you will only need to use one of them. That one which you will need to use is sys.com. If you need to get back to pre-W95 DOS rapidly, all you have to do is boot from the floppy, and from the a: prompt do sys c: (more on all of this later). In addition, put the following files on your two system floppies: format, fdisk, debug, xcopy, edit, qbasic.exe. Make a sub directory labeled startup, and put your autoexec.bat, config.sys, win.ini and system.ini files there.

Now do some housecleaning. You'll typically want to put W95 on your c: drive, installing into your current \windows. Clear out all those old files you've been meaning to zap. The reason is that not only does W95 take extra space, but it needs as much free space as you can give it for its virtual memory system (its replacement of your Wins 3.X permanent swap file).

Now do some installing. The reason is that if you wait to install until under W95, when you go back to Wins 3.X, you'll need to reinstall those programs again. Save yourself some trouble! In particular, if you have any Win32s apps, do install them now. Not all of their installers will work under W95 (Pixar Typestry 2.0 is a notorious example); in some cases there are kludges, in some cases not.

Now you need to do some backing up. Here's the system I use very effectively; I've sometimes had to switch operating systems several times per week, so I know this works. I find another partition on my drive, and do some ZIP files. Four, to be precise. One for \windows, one for \windows\system, one for \windows\system\win32s, and one for \dos. The reasons for the first two are obvious. You want Win32s backed up because the W95 installer will remove a large number of those files. You want DOS backed up because if you're installing over Wins 3.X, the installer will zap a lot of your DOS files (a text file with W95 tells you which ones; it's a lot but by no means all; I think it's easier just to back up what you've got). Why do I use ZIP files? Because I don't use tape backups, and because there are fewer things to go wrong in restoring if you do it from

ZIP files under your old version of DOS than if you try to get your tape system working. Im not saying tape is bad; Im just saying this ZIP file approach has the fewest possible ways for things to go totally south. See below on how to use these files to get your Wins 3.X system back.

Were getting close now. Its time to do some editing. If youre not using Program Manager as your shell, return to it now. Turn off your screen saver. Turn off everything in the run and load lines of win.ini. Remove everything from your StartUp Group. Now bring up Sysedit and edit autoexec.bat and config.sys. Although the installer is supposed to rem out lines from memory managers it doesnt need, I dont entirely trust it. Anything that youre loading high -- remove the loading high information, i.e. leave the line as if you were loading into normal low 640K DOS. Remove all references to your memory manager. Remove any TSRs you dont need either to boot or to get into Windows. Add himem.sys, which is really all you need to get into Windows. Now reboot, and make sure you can get into Windows. Then go back out to straight DOS. Run chkdsk /f on your c: partition. Then defrag the partition and do full optimization (i.e. compress or pack or whatever your defragger calls it). Now boot again, bring up Windows 3.X, and youre ready to go!

Installing Issues

I strongly suggest you install into your current \windows. That way, your winapps will be available for you. If you must do dual boot, remember youll need even more drive space, and youll have to reinstall your winapps (if they rely on files in \windows or \windows\system to run). Let the installer detect appropriate hardware (it may miss some; see below). You may find when it reports to you that its missed your monitor type; when it gives you the summary you will have the option to change it. For installation, I strongly urge you to select the last option (Custom), since I dont find the default choices elsewhere to be helpful. Go through each section and be sure to click the Details button to add exactly what you want. In particular, note that there is some new wallpaper, and new screen savers, which youll probably want. Choose other items depending on your needs and capabilities.

Ive found the actual install to be fairly trouble free, but some have not. If your system simply stops responding (give it plenty of time), dont be afraid to follow the MS suggestion to turn your computer off, and then back on again. Once you actually get into W95 for the first time, the installer will do a lot of setting things up (it will tell you what its doing), and then reboot. After you get into W95 this second time, I urge you to immediately go to the Start Menu on the Task Bar, and shutdown/restart. Strange things have happened at times to people who havent done this.

Starting to use W95

Very first thing to do if you share my opinion. Go into My Computer (Explorer), head for \windows, and using the *right* mouse button, drag winfile.exe onto your desktop. What youve done is create a shortcut (os/2 speak: shadow; mac speak: alias) for, gasp, File Manager. You may think you hate FM, but youre used to it. My Computer (Explorer) takes a little getting used to, and have FM around will give you either training wheels or else FM back (Im in the latter case; I can use Explorer, but *hate* it). This leads to a larger point.

Your shortcut is identified as such by the little arrow on its icon which

possibly clobbers the icons look (note: many of us betazoids have complained about it). This comes from right-dragging. Do NOT left-drag, because what you will have done is *move* the file...and if its a big .exe file from somewhere else, it may not run (youll have moved it, incidentally, to c:\windows\desktop). Consider putting up a sign Its The Right Button, Stupid. I mean this seriously, and not just for this. Get in the habit of right-clicking on things. Right click on the desktop, and from the popup, select Properties. Voila! You can change color, video drivers, wallpaper! Want to find out more about a file? Right click on it in Explorer. Want to fine-tune a DOS app? Right click on its executable. Want to tinker with the Task Bar? Right click on it. You get the picture!

I found it easy to use the Start menu and never missed Program Manager. But if you need the training wheels, here are two ways to get them. Run progman.exe out of either FM or Explorer. Or use explorer to drill into \windows\startmenu, double click on Programs.

Various issues

Dont feel youre losing face or speed if you have to use real mode drivers; MSs hype is a bit out of hand there. But use protected mode (W95) drivers if you can. Often your cd-rom scsi card will not be detected. You can go into Control Panel, Add New Hardware, and have it present you with a list of scsi cards. Choose your card and follow the prompts; you will find this installs the cards driver, and also enables recognition of your cd-rom drive (assuming, of course, its supported). You can try the same thing for any hardware not detected. Note that once you have protected mode cd-rom support, you can REM out the mscdex references in your autoexec and config files. Ive not tried installing tablet support, so I cant help you there.

No protected mode scanner drivers are shipping right now with W95, but your real mode ones will work, and so will TWAIN, except in 32 bit apps like Photoshop 3.0 (see below). If youre daisy-chaining, you may find theres no protected mode ASPI support (a chronic problem), but your real mode ASPI driver will work.

If you *are* installing a Wins 3.X app, and the installer wont work of the Run command on the Start menu, try running the installer out of FM. This is something Ive discovered on my own, and I dont think anyone else knows it (yet).

W95 may install mouse support correctly, or it may not. I still got the dreaded GROWSTUB errors. Essentially, you have to force W95 to install its drivers, and there are several ways to do it, based on your system. Took me about two hours to dope it out. Ask, and I can offer some specific guidance.

Application issues

Photoshop 3.0 has a line in the 32 bit compatibility section of win.ini which enables it to run. There are issues opening TIFF files: to work around, select TIFF as file choice, and type in the *full* name. Save As can be problematic, and the work around is similar.

AI is, er, dubious. I can get it to run, but I get errors previewing certain files with text. Others cant even get in. You can try using your real mode video drivers; some, but not all, have had success. These are known issues.

Pixar Typestry 2.0 wont even install into W95, hence my advice to install it as a Win32s app before putting W95 on. The Looks previews have been both fixed and then broken; the programmer tells me they will be fixed again. It wont recognize your Type 1 fonts; this may not be fixed, because it may be Pixars fault; i.e. Typestry on W95 thinks its an NT app. Note that this problem does **not** exist in Photoshop.

You wont have TWAIN support in Photoshop 3.0; it will take a 32 bit twain module from the hardware people. The most any are saying is by ship date of W95. Same thing applies to your Third Party filters.

Problems running WinWord6? WOPR is a known issue; disable it. Macros from 2.0 converted to 6.0 can also slow it down (a problem I had).

MS Arcade Centipede will randomly fault on you, but clicking ignore several times will let you keep playing without any obvious ill effects.

Freehand sometimes works and sometimes freezes. Known issues.

The FTP program from InterNet In A Box returns a Divide By Zero Error. Other FTP clients seem to work. I find it easier to use my native (Trumpet Winsock) dialup rather than trying to use the MS doodad. You can do it, but it isnt easy; I expect MS will tell you how in some form or another.

You may have to run some of your DOS games in an **exclusive** DOS session, although things are getting better in this regard. Check the docs for how to set up this kind of session.

When using the Desktop/Properties to select your screen saver .SCR files, you may notice some have the configure box grayed out. This is a known issue (MS has contacted me on it), and it may mean that the screen saver has to be rewritten. But you can configure it! Find it in Explorer, right click on the file, and the popup will have a configure option which works. A few .SCR screen savers will not run at all.

Getting back to Wins 3.X

This is really simple. Shutdown, put your bootable floppy in, and then from the a: do sys c: and youre back. For further cleaning up, I do as follows. Delete *.* \windows, \windows\system, \dos and \win32s. Then restore from your ZIP files. Restore autoexec.bat and config.sys from your floppy, and reboot and go into Windows 3.X. From FM, first kill all the W95 directories. Then turn on so that you can view hidden files and directories. There will be more to kill. Kill **all** except io.sys and msdos.sys in your c: root directory (these are you dos startup files). One caveat. When you first get back to Wins 3.X, you will probably get a message that your Wins permanent swap file is corrupted. Ignore it. Youll kill its hidden files per previous. Then reboot, go back into Windows, and go into Control Panel, 386 Enhanced, and recreate it. Finally, go out to DOS and chkdisk /f and then defrag.

> STR FOCUS!
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Why use the mini CompuServe Net Launcher
if you already have the full version
of
INTERNET-IN-A-BOX?

by Nelson Ho

As you know, Spry, (the developer of Internet-In-A-Box) was acquired by CompuServe and the NetLauncher is a lite version which contains only AIR Mosaic, Image Viewer and Dialer. If you already have the full version of Internet-In-A-Box, I believe that you should already have another Service Provider and you may want to use the same dialer to select your connection point whenever you wish to. Anyway, the dialer in NetLauncher only allows you to select the session info from CIS, which makes it impossible for a user to select any other provider.

After having installed the NetLauncher, I found that I was in trouble when I want to access my original service provider for Email (which I have bundle my mail daily), I needed to change the AIRMOS.INI and WINSOCK.DLL which is really a very very tiresome task. At last, I decided to uninstall the NetLauncher and try to setup my original Dialer to logon to the CompuServe PPP. I found no information for doing so, while plenty of info is provided for OS/2 and Mac. Referring to the info for OS/2 and Mac, and after several hours of dial-in and test, I finally succeeded in accomplishing exactly what I sought to do. I would like to share my experiences everyone who wishes to use their own Internet-In-A-Box to connect the CompuServe PPP.

I am using the latest Version 1.0a and the layout is different from the 1.0, if you have an older version, please update your software. For upgrading to 1.0a, just go to the anonymous ftp server of Spry from your Network File Manager (NFM) to support.spry.com, download the /pub/ibox/patch/all_ibox.exe (2,608,248 bytes) and /pub/ibox/patch/mos_dlr/dialer.exe (852,879 bytes) for the upgrade.

Now From your Configuration Utility, make the following changes for each screen (the example assumes that your CompuServe ID is "123456,789" and Password is "ABCDE-XYZ"):

1. Click the Manual Setup Button;
2. At the Communications Port Setup, select Data Bits=7 and Parity=Even (if you cannot see the items, click the Advanced button), then OK;
3. At the Modem Setup, ensure that CTS Control is checked if your baud rate is 19200 or higher (if you cannot see the items, click the Advanced button), then OK;
4. At the Dialer Setup, enter your local access number, and make sure that:

Your IP Address	:	0.0.0.0
Name Server 1	:	149.174.64.41
Your Host Name	:	(not necessary)
Net mask	:	255.255.255.0
Name Server 2	:	(not necessary)
Domain Name	:	compuserve.com
No need for checking the Configure Using BOOTP		

then click OK;

5. At the Network Interface, select PPP Point to Point Protocol as Interface Type;
6. Click the Settings button, select PAP (Password Authentication Protocol);
7. Click the Settings button, enter 123456,789 as Username and ABCDE-XYZ as Password then click OK;
8. Should you don't see the PPP Start / Compression / General selecting boxes, click the Advanced button;
9. Select Active Open for PPP Start, check VJ (Van Jacobson IP Header Compression) for Compression and enter 1500 at the MRU, while others leave unchange, then click OK to return to the Network Interface, OK again;
10. From your Default Hosts, enter the following:

(you may not need to enter the Email User name and Email Password, since accessing your CompuServe mailbox should better through WinCIM or CsNAV, however if you have other Service Providers, assume that your other Internet Address is "onemore@abc.edu" and its password is "pw2abc")

Email Account

Email User name:	onemore	(or blank if you don't have any)
Email Password :	pw2abc	(or blank if you don't have any)
POP3 Email Host:	abc.edu	(or compuserve.com if you don't have any)
SMTP Relay Host:	abc.edu	(or compuserve.com if you don't have any)
Email Address :	onemore@abc.edu	(or 123456.789@compuserve.com if you prefer)

Default Internet Hosts

AIR Mosaic:	http://www.compuserve.com	(or any other Web Host you like)
AIR Gopher:		(up to your selection)
AIR News :	news.compuserve.com	(or any other News Host you like)
Network File Mgr:		(up to your selection)

then OK and OK to confirm the Warning dialog box;

11. Right now, you should be returned to the Configuration Utility dialog box, just click the Connection button;
12. At the Connection Setup, click Login Setup;
13. At the Login Setup, select Auto for Auto Login;
14. Set 1 for Initial Carriage Returns;
15. Create a script consists of 3 responses as follow:

Response #1	Wait for :	Host Name:
	...pause :	1

Response : CIS

Response #2 Wait for : User ID:
...pause : 1
Response : 123456,789/go:pppconnect

Response #3 Wait for : Password:
...pause : 1
Response : ABCDE-XYZ

For this last response, remember to CHECK the Start Packet Mode
after: 1 second.

then OK and OK and Exit to return to the Configuration Utility,
select Save Profile and enter a new name and description.

Right now, everything should be perfect. Enjoy yourself and see you on
the Net!

by Nelson Ho from Hong Kong CompuServ : 100314.662@compuserve.com
Internet : nelsonho@hk.net

A T T E N T I O N -- A T T E N T I O N -- A T T E N T I O N

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much. Its said that ONE Picture is worth a thousand words. Send for this
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allow at least a one week turn-around)

A T T E N T I O N -- A T T E N T I O N -- A T T E N T I O N

:HOW TO GET YOUR OWN GENIE ACCOUNT:

Set your communications software to Half Duplex (or Local Echo)
Call: (with modem) 800-638-8369.
Upon connection type HHH (RETURN after that).
Wait for the U#= prompt.

Type: XTX99587,CPUREPT then, hit RETURN.

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MAC/APPLE SECTION (II)

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John Deegan, Editor (Temp)

> CompuServe sets the Pace! STR FOCUS!

COMPUSERVE ANNOUNCES EXPANSION
ADDED ACCESS WITH NO INCREASES
SPECIAL INTERNET PRICE CLUB

Impending Global 28.8 kbps Local Dial Access; Network Dial Port Population to Double; 1-800 ISDN Access Slated for June

SAN JOSE, Calif., April 12 In addition to the announcement of its acquisition of SPRY(TM), the largest Internet industry-related transaction to date, CompuServe(R) today announced sweeping plans to upgrade its global data network for enhanced worldwide TCP/IP network services.

Beginning May 1, 1995, CompuServe will execute the conversion of all its existing 42,000 dial ports to V.34-compliant 28.8 kilobit-per-second (kbps) local dial access. Other planned enhancements over the coming fiscal year include more than doubling its current number of network dial ports to over 85,000. All to support 28.8 kbps and initiate roll-out of ISDN services.

The upgrade of over 420 Points of Presence (POPs) for 28.8 kbps local dial access, including CompuServe's 60+ international POPs, is slated for completion by the end of CompuServe's next fiscal year, concluding April 30, 1996. ISDN service, which will offer access speeds of up to 64 kbps using switched services, will be available via 1-800 dial in June, 1995. Local ISDN access will be provided in approximately 10 cities by the end of August, 1995.

All ports in the CompuServe Network are PPP-ready. There will be no extra cost incurred for accessing the CompuServe Network at 28.8 kbps. Pricing for ISDN and a list of initial cities to receive the high-speed upgrades will be available at a later date.

"CompuServe Network Services' sustained revenue growth rate of approximately 35% over the past several years has empowered us to take this significant step in the ongoing expansion of our network," said Greg Moore, CompuServe's vice president, network marketing. "We're making a tremendous investment of resources to meet these network upgrade commitments, as both our business networking customers and Information Service members worldwide rely on our comprehensive Internet services and value-added, integrated solutions."

Moore illustrated CompuServe's leading role in making a TCP/IP enabled network a reality, as CompuServe accepts Dial PPP sessions from any of its own dial ports or from gateway partner ports, together covering 150+ countries.

Moore also added that this major investment of resources toward the network provides strong support for CompuServe's Web integration and IP Dial services, as well as for SPRY, the CompuServe Internet Division, headed by former SPRY President David Pool.

"Consumers and corporations are looking for the fastest yet most reliable way to access the Internet," said Pool. "CompuServe's massive networking infrastructure, coupled with SPRY's secure software, provides users with the ability to successfully conduct electronic commerce over the Internet, from anywhere in the world."

"For CompuServe's 2.8 million Information Service members worldwide, 28.8 kbps dial access provides tremendous opportunities for accessing more information at a lower overall cost," said Barry Berkov, CompuServe's executive vice president, Information Services Division. "Higher bandwidth will also open the door for consumers to transaction services, the ability to receive on-line music, graphics and video, and increased software distribution capabilities across our secure network. Our members have been asking for higher speeds, and we are delivering."

COMPUERVE LAUNCHES FREE FULL INTERNET ACCESS
=====

Free three (3)hours per month
lower hourly rate
Internet Club Plan

SAN JOSE, Calif., April 10 Compuserve, demonstrating clearly that it is reinforcing its leadership in Internet services, announced this week the industry's most competitive Internet access and pricing: free, full Internet access and Web browsing software for its members.

CompuServe Information Service members enrolled in the standard pricing plan (\$9.95/month) now automatically receive three free hours of Internet access per month in addition to unlimited access to more than 120 basic services. Additional hours of Internet use by these members will be billed at \$2.50 per hour, an hourly rate that is the lowest among online service providers.

For high-volume Internet users, CompuServe introduces the Internet Club, which offers 20 hours of access to Internet services for a \$15 monthly fee (in addition to the basic \$9.95 monthly membership fee). Additional Internet hours will be billed to club members at \$1.95 per hour.

In a separate announcement, the company unveiled additional Internet-related services, specifically, free distribution of the CompuServe NetLauncher, a software product providing one-step access to the World Wide Web via SPRY Mosaic; and a full Internet connection using the Point-to-Point Protocol (PPP) that is open to users of any operating system or platform.

Savings under the new pricing formula range from 58 percent to as much as 87 percent over CompuServe's previous Internet pricing, depending on how many hours are used and whether or not the club plan is chosen. These prices apply to CompuServe's extensive 9.6 and 14.4 kbps local access, and will apply to 28.8 kbps access as it becomes available. Internet services are free of communication surcharges through CompuServe's network in the United States, Canada and Western Europe. Supplemental network charges and any monthly fees for access through other networks still apply.

"CompuServe is in a unique position to offer the best value to today's Internet user," said Maury Cox, CompuServe president and chief executive officer. "We have the largest customer base worldwide; we own our own network; and we recently acquired SPRY, the leader in Internet software. From this position of strength and profitability we can offer not only the best prices, but also the best features and service.

"Our members and prospective members can now eliminate the monthly fee they have been paying to an Internet-only access provider and have the convenience of meeting all their online needs in one place, inexpensively," Cox continued.

"Internet Made Easy(SM)" is CompuServe's strategy to provide easy-to-use, affordable Internet access and related services to its information service members. CompuServe was the first online information service to offer email access to the Internet in 1989. Telnet access to the information service from the Internet followed in 1994, as well as FTP capability and access to USENET Newsgroups. For a complete listing of CompuServe Internet services, access CompuServe's home page on the World Wide Web (<http://www.compuserve.com>) or call for more information.

For access to the World Wide Web, CompuServe members who are Windows users can utilize NetLauncher for maximum ease of use. The new pricing is effective today.

All members, including those running other operating systems or hardware platforms such as OS/2 or Apple Macintosh, can choose the direct PPP connection for access to the full range of Internet resources using their choice of software, for the same pricing as the other access methods, effective today.

CompuServe's online international newsstand features more than 200 general interest and niche publications, dozens of syndicated columnists and more than 900 entertainment, hobby, games and personal computer forums. For a \$9.95 monthly fee, members have unlimited access to more than 120 services including daily worldwide news, weather and sports reports. In addition to the CompuServe Information Service, CompuServe offers networking, electronic mail and business information services to major corporations worldwide. CompuServe is an H&R Block (NYSE: HRB) company.

CompuServe's new Internet pricing applies to a wide variety of Internet services, accessible three ways: Members wishing to access Internet e-mail, USENET newsgroups, file transfer protocol (FTP) and Telnet (remote

login) can continue to do so with the CompuServe Information Manager. The new pricing will be effective May 1.

CONTACT: Debra Young or Carrie Reber, 614-538-4553, or 614-538-4092

The CompuServe Information Service is the world's most popular on-line service with 2.8 million members who access the service from more than 150 countries. The undisputed industry leader in innovation, the service offers global e-mail, the industry's first CD-ROM supplement, libraries of free software, selected 28.8 kbps access and worldwide Internet services. CompuServe is recognized globally for its international membership and diverse content.

SPRY, the new Internet division of CompuServe, is the leading developer of Internet access applications for the office, home and publishing markets. Founded in 1989, the company is based in Seattle, Wash. SPRY brings networked connectivity to the Windows desktop through three products: Internet Office(TM), Internet In A Box(R)(TM) and Mosaic In A Box(TM). Internet Office is a corporate network solution designed to provide PC to Internet, UNIX and mainframe connectivity through a full suite of applications. Internet In A Box provides the remote dial-up user with full Internet connectivity. Mosaic In A Box is an entry-level Internet access solution providing consumers with plug and play access to the Internet's World Wide Web.

CompuServe's Network Services Division, with almost 30 sales and support offices throughout the United States and Europe, provides value-added frame relay, remote LAN access, Lotus(R) Notes(R)-based replication services, commercial Internet software and access services, Web integration services, X.25 services and electronic mail to major corporations and government agencies worldwide.

For more information about CompuServe Network Services, call toll-free 800-433-0389, access CompuServe's Web page at www.compuserve.com or e-mail to networkinfo@compuserve.com. Outside the US, dial 614-798-3356.

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> SAY WHAT?? STR Spotlight  
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30 Signs that Technology Has Taken Over Your Life

1. Your stationary is more cluttered than Warren Beatty's address book. The letterhead lists a fax number, e-mail addresses for two on-line services, and you Internet address, which spreads across the breadth of the letterhead and continues on to the back. In essence, you have conceded that the first page of any letter you write *it* letterhead.
2. You have never sat through an entire movie without having at least one device on your body beep or buzz.
3. You need to fill out a form that must be typewritten, but you

can't because there isn't one typewriter in your house --- only laser printers.

4. You think of the gadgets in your office as "friends," but you forget to send your father a birthday card.
5. You disdain people who use low baud rates.
6. When you go to a computer store, you eavesdrop on a salesperson talking with customers -- and you butt in to correct him and spend the next twenty minutes answering the customers' questions while the salesperson stands by silently, nodding his head.
7. You use the phrase "digital compression" in a conversation without thinking how strange your mouth feels when you say it.
8. You constantly find yourself in groups of people to whom you say the phrase "digital compression." Everyone understands what you mean and you are not surprised or disappointed that you don't have to explain.
9. You know Bill Gates' e-mail address, but you have to look up your own social security number.
10. You stop saying "phone number" and replace it with "voice number" since we all know the majority of phone lines in any house are plugged into contraptions that talk to other contraptions.
11. You sign your Christmas cards by putting :-) next to your signature.
12. Off the top of your head, you can think of nineteen keystroke symbols that are far more clever than :-).
13. You back up your data every day.
14. Your wife asks you to pick up some minipads for her at the store, and you return with a rest for your mouse.
15. You think jokes about being unable to program a VCR are stupid.
16. On vacation, you are reading a computer manual and turning the pages faster than everyone else who is reading John Grisham novels.
17. The thought that a CD could refer to finance or music rarely enters your mind.
18. You are able to argue persuasively that Ross Perot's phrase "electronic town hall" makes more sense than the term "information superhighway," but you don't because, after all, the man still uses hand-drawn pie charts.
19. You go to computer trade shows and map out your path of the exhibit hall in advance, but you cannot give someone directions to your house without looking up the street names.
20. You would rather get more dots per inch than miles per gallon.
21. You become upset when a person calls you on the phone to sell you

something, but you think it's okay for a computer to call and demand that you start pushing buttons on your telephone to receive more information about the product it is selling.

22. You know without a doubt that disks come in five-and-a-quarter and three-and-a-half inch sizes.
23. Al Gore strikes you as an "intriguing" fellow.
24. You own a set of itty-bitty screw-drivers and you actually know where they are.
25. While contemporaries swap stories about their recent hernia surgeries, you compare mouse-induced index-finger strain with a nine-year-old.
26. You are so knowledgeable about technology that you feel secure enough to say "I don't know" when someone asks you a technology question instead of feeling compelled to make something up.
27. You rotate your screen savers more frequently than you automobile tires.
28. You have a functioning home copier machine, but every toaster you own turns bread into charcoal.
29. You have ended friendships because of irreconcilably different opinions about which is better -- the track ball or the track *pad*.
30. You understand all the jokes in this message. If so, my friend, technology has taken over your life. We suggest, for your own good, that you go lie under a tree and write a haiku. And, don't use you laptop.

IMPORTANT NOTICE!

=====

STReport International OnLine Magazine is available every week for your reading pleasure on DELPHI. STReport's readers are invited to join DELPHI and become a part of an extremely friendly community of enthusiastic computer users there.

SIGNING UP WITH DELPHI

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Using a personal computer and modem, members worldwide access
DELPHI services via a local phone call

JOIN --DELPHI

Via modem, dial up DELPHI at 1-800-695-4002
then...

When connected, press RETURN once or twice

and...

At Password: type STREPORT and press RETURN.

DELPHI's 20/20 Advantage Plan
20 Hours for Only \$20!

Advantage Members have always enjoyed the lowest DELPHI access rates available. On the new 20/20 Advantage Plan, members receive their first 20 hours of access each month for only \$20. If you happen to meet someone OnLine or find some other diversion, don't worry because additional usage is only \$1.80 per hour.

20/20 Advantage rates apply for access via SprintNet or Tymnet from within the continental United States during home time or via direct dial around the clock. Home Time is from 6pm to 6am weekdays. Access during business time carries a surcharge of \$9 per hour. These rates apply for most services, but note that there are some surcharged areas on DELPHI which are clearly marked with a "\$" sign.

Who is eligible to take advantage of the plan? Any DELPHI member in good standing. Applications are reviewed and subject to approval by Delphi Internet Services Corporation.

It's easy to join. If you meet the eligibility requirements, you can apply OnLine -- at any time -- for membership in the DELPHI 20/20 Advantage Plan. Your membership becomes active at 4 a.m. Eastern Time on the first billing day of the following month.

The \$20 charge will be billed to you at the beginning of the month to which it applies. Any portion of the 20 hours not used in any month does not carry forward into the next month.

Advantage rates may be changed with 30 days notice given OnLine.

TRY DELPHI FOR \$1 AN HOUR!

For a limited time, you can become a trial member of DELPHI, and receive 5 hours of evening and weekend access during this month for only \$5. If you're not satisfied, simply cancel your account before the end of the calendar month with no further obligation. If you keep your account active, you will automatically be enrolled in DELPHI's 10/4 Basic Plan, where you can use up to 4 weekend and evening hours a month for a minimum \$10 monthly charge, with additional hours available at \$3.96. But hurry, this special trial offer will expire soon! To take advantage of this limited offer, use your modem to dial 1-800-365-4636. Press <RET> once or twice. When you get the Password: prompt, type IP26 and press <RET> again. Then, just answer the questions and within a day or two, you'll officially be a member of DELPHI!

DELPHI-It's the BEST Value and getting BETTER all the time!

-* ANNOUNCING: DELPHI INTERNET JET *-

Windows-based graphic interface for the otherwise text-only Delphi online service. In addition to providing the user with a graphic interface, Delphi Internet Jet can be configured to automatically gather Delphi Internet e-mail and forum messages, and place them into a QWK packet for the user's existing QWK mail reader! Complete instructions for setup, operation, Delphi membership, and a FREE five hour trial included in the

INTJET.TXT file.

ATARI/JAG SECTION (III)

=====

Dana Jacobson, Editor

> From the Atari Editor's Desk "Saying it like it is!"
"*****"

It's been a long week! For you, the week is over, but here at STReport Northeast, it's still going on as I sit here wondering why time seems to be dragging this week. Busy, busy, busy....but.....

There's a LOT of stuff going on this week, some dealing with our favorite platform; and news in general just hitting us from all directions! These are the kinds of weeks that editors just love, as there's plenty of news for just about everyone.

I've been playing around with a Mac Navigator program (using Spectre, of course!) to see how using one will help me get through a zillion CompuServe places that I frequent often. After ordering the software, I was disappointed that after waiting longer than anticipated, I couldn't read the Mac disk on my ancient Spectre 128; I needed a GCR!! Well, that's okay, I can download the file from the Navigator Support Forum to my Spectre partition! Or so I thought. It seemed that the support area didn't recognize my online software registration - I didn't have access to that particular area! After over a week of messages to various folks, I finally managed to get access a few days ago. I now have the software in a fashion that I can read and access the program. I'm currently working to get it configured to my needs and wants. This looks terrific; and I should be able to get around CompuServe conveniently and not have to monitor my daily sessions. It should be a lot of fun! I'll try to get it up and running shortly, and experienced enough so I can post my notes about it for our Spectre/Mac readers.

Well, let's get to the news and information - we've heard from a number of folks that we haven't heard from in awhile.

Until next time...

Delphi's Atari Advantage!!
TOP FIVE DOWNLOADS (4/12/95)

- (1) UNIVERSAL PRINT CONTROL ACC
- * (2) SPEED OF LIGHT 3.7B
- (3) SILKBOOT 3

(4) ACCENT PUTS FUN IN YOUR TEXT!
 *(5) LITTLENET/MIDI PORT NETWORK PRG.

* = New on list
April 14, 1995
HONORARY TOP 5

The following on-line magazines are always top downloads, frequently out-performing every other file in the databases.

STREPORT (Current issue: STREPORT 11.14)
ATARI EXPLORER ONLINE (Current issue: AEO: VOLUME 4, ISSUE 4)
Look for the above files in the RECENT ARRIVALS database.

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> Lexicor News! STR NewsFile!      -   New Nova Prices  
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From Ringo@Lexicor Tech.

Lexicor Software NOVA NEWS.

Lexicor Software is proud to announce a brand new pricing structure for its customers. Please note that the NOVA Board is now also available by another distributor in Canada, but only Boards purchased by Lexicor Software or via a Lexicor dealer with the Lexicor warranty card is eligible for this great package.

Anyone who buys or owns a Lexicor Software bought NOVA Graphics Board is now entitled to a free gift. This is our way to show your appreciation and support of Lexicor Software.

If you are a Lexicor NOVA User (NOVA Megabus, NOVA VME, VME Plus, Plus 2, SuperNOVA or SuperNOVA Plus) then please send in your registration card. If you have already done so, then just send in a letter with you name and address so that we can check the name in the database and you can claim your gift!

One 3D2 and RD1 Special Design Disk, the Galactic Toolbox and Lexicor FLIC/X Utilities is the special gift. The Design Disks features some awesome 3D2 and RD1 designs for use in Phoenix and Chronos-3D. New NOVA Customers receive the special gift as well as a copy of Phoenix Object Renderer or Raystart 1.1 Analytical Raytracer!

New NOVA Pricing is as follows:

NOVA Megabus (regular)	-250 U\$D
NOVA VME (regular)	-250 U\$D
NOVA VME Plus 1 Megabyte Version	-499 U\$D
NOVA VME Plus 2 Megabyte Version	-599 U\$D

The regular NOVA is now not being made for either VME or Megabus so we only have stock left for sale, once the stock runs out that is it. Lexicor Software continues to support the NOVA Board that it introduced into america several years ago, and is proud to announce the new competitive pricing range!

Internet : service@lexicor.com
Genie : GRAPHICS RT or LEXICOR
CIS : 75300,763
DELPHI : LEXICORWORLD

April 7, 1995
News Release
Toronto, Ontario, Canada

Ditek can be reached online at 73140,2353 or GO DITEK

DynaCADD combines an extensive collection of features, uncommonly fast display speed and seamless performance. DynaCADD's attention to ease of use drastically reduces the learning period normally associated with CADD packages. Ditek International's strong commitment to research and development combined with a dynamic programming team, ensure that DynaCADD will remain on the leading edge of CADD technology. Fully interactive 2D and 3D capabilities. All calculations are accurate to 16 decimal places. Math co-processor support. Extremely user friendly icon based interface. Pull down menus, mouse, keyboard, function keys and user definable macro keys. Online context sensitive documentation. On screen command help line. CADD programs are notorious for being difficult to use due to the complexity of the application.

Most packages require an enormous number of commands, therefore the designers of any CADD program must find a way to make commands available quickly and easily. DynaCADD has addressed this problem and created a workable solution in the form of a logical icon menu system that sets the

program apart from all competitors. On the left side of the screen, and across the top of the drawing area, small icons represent the commands graphically. Each icon represents a command or, more commonly, a part of a longer command chain you build by successively clicking on the icons in the correct order. The command name associated with each icon appears at the top of the drawing area when you move the pointer over the icon. DynaCADD uses four icon pads on the left side of the screen to display the available commands and modifiers.

Due to the large number of commands available, a tree structure is implemented, in which related commands and modifiers only appear after a higher level command is selected. Clicking on the top level icon causes all secondary commands, or sub-commands, to appear in the icon pad directly below the top level icons. Additional appropriate sub-commands, modifiers or flags appear in the third icon pad, depending on which secondary level command you select. The bottom icon pad is reserved for displaying the various entity and location selection commands.

3D View Capabilities

Multiple 3D views can be opened and modified at any time. Geometric coordinate planes (GCP) can be changed instantly. Translation of 3D coordinate planes. Dynamic rotation along GCP axis of any view. Work can be done in any combination of views with all views updating constantly. Automatic generation of any orthographic view including user defined auxiliary views. Entities can be selectively hidden in any view allowing easy generation of true orthographically sound views. Other view operations include; scaling, changing GCP, scrolling, zooming in/out and zoom to database extents.

Hidden Line Removal

The hidden line removal parameter include: Generate Entities: Create 2D line from the edges of the 3D faces after the hidden portions of the edge have been removed. Display Entities: Will display all other entities after the hidden lines have been generated. Blended Planes: If two or more faces share a common edge and the two are coplanar, the edge will be removed. Hide Views 1â4: Only selected views will have hidden lines removed.

Dimensioning

Auto dimensioning features include: Mechanical and Architectural formats. Full 2D and 3D dimensioning. Absolute control over dimensioning extents and text. Optional modification of dimension text. True horizontal and vertical baseline and chaining. Circular radius, diameter and enter line. Automatic linear and angular tolerancing in any of three different styles. Text orientation using any one of the three different systems (unidirectional, angled or aligned). Dimension text precision can be set from 0 to 9 decimal places.

Line Weights / Styles

Three line weights for use with all entities and visual representation both on the screen and output. Up to 64 user definable line styles can be selected.

Resident View Control

Sophisticated command nesting allows the following list of commands to

be accessed at any time: Zoom in/out. Zoom into a window. Scroll or pan the page. Center the page on a point. Re-size drawing area instantly.

Drawing command history.

Grid and Axis

Grid / Axis major and minor increments can be defined by the user. Axis represents a working sheet of graph paper. Grid is used to snap to specified locations.

Entity Types

Base entity types include: POINTS, LINES, CIRCLES, ARCS, FILLETS, ELLIPSES, ELLIPTICAL ARCS, TEXT, SOLID, 3D FACES, B-SPLINES and BEZIER CURVES. Multiple entities in BOXES, POLYGONS, POLYFIGURES, SUBFIGURES, SECTIONING and HATCHING. Entities can be either 2D or 3D. Entities in 3D can be transformed to 2D.

Entity Insertion

Entity insertion is facilitated using fifteen 2D dynamic rubber band modes or function keys.

Location and Entity Snap

Location modifiers include: Absolute X, Y, Z coordinates. Incremental X, Y, Z coordinates. Relative polar radius and angle. Entity Snap of selected entities by: ENDend point of a selected entity. ONdirectly on a selected entity. ORGcenter of a selected entity. INTintersection of two selected entities.

Entity Selection

Selecting Entities: One entity, all entities. Entities inside or outside a window. Entities within a polywindow. Last entity inserted/transformed. Entities on a given layer. Entities of a given color/pen number. Entities of a given style or weight. Chained entities. Filter any single or group of entities.

Entity and Drawing Information

DynaCADD gives you the ability to: Measure distances (2D & 3D). Measure angles. Measure perimeters. Measure areas. Verify location, style, slant, rotation and absolute positioning. List database extents and drawing parameters.

Entity Transformations

Transformations between 2D or 3D positions: Move, copy, delete, mirror, stretch, scale, rotate, mask or unmask existing entities. Trim/Divide lines and arcs. Revolve/Sweep along a vector. Create array of entities. Construct an entity offset. Generate points on entities. Modify entity attributes. 3D entity transformation of any view into 2D entities.

Printer Support

Epson and compatible printers, both 9 and 24 pin. Laser printers, HP LaserJet series, PostScript compatible and Encapsulated PostScript. All drivers allow draft and final output, multi-sheet prints, scaled and

constant ratio prints. Final output utilizes the printers highest graphics mode.

Plotter Support

Pen plotters, including Houston Instruments, Hewlett-Packard, Ioline, Calcomp, HPGL and DMPL compatible devices are supported. Plotter drivers can be customized for DynaCADD using MAKEPLOT. Plots can be generated at a constant 1:1 ratio or a drawing can be automatically scaled to any degree. Plotting extents can be defined using drawing page, current window or database extents. Plotter and Printer output can be directed to the serial port, parallel port or to a disk file. Background plotting and printing allows output while DynaCADD is in session.

MAKEPLOT Utility

If your plotter driver is not included with DynaCADD, or is not configured to any of those included, we provide with DynaCADD a MAKEPLOT utility. Simply load the program, and fill in the necessary information in the dialog box in order to create your own driver.

Background Plotting and Printing

DynaCADD also provides the facility for background printing and plotting. While in session, you can output your drawing while continuing to work within the program and without having to wait or leave the drawing session.

File Transfer

DynaCADD supports the following file formats: DXF 2D (In/Out) DXF 3D (In/Out) HPGL, DMPL and Calcomp (Out) PostScript[®] (Out) Encapsulated PostScript[®] (Out) GEM[®] Paint IMG Files (Out) Xerox Ventura IMG Files (Out) GEM[®] META Files (Out) IFF File format (Out)

Sectioning/Cross Hatching

Both sectioning and cross hatching operate in 2D and 3D mode. 3D sectioning/hatching can be activated on any user definable plane. Up to 256 hatch patterns can be easily defined using the Font Editor. Fourteen pre-defined hatch patterns are included.

DynaCADD Text / Fonts

Professional AGFA/COMPUGRAPHIC fonts are included. Fonts are loaded and stay resident. Text can be changed from one font to another. True character kerning, proportional or constant (mono) character spacing. Left, right or center text justification. Character width, height, slant, rotation, pen styles, weights, color and layer can be set.

Vector Font Editor

A designer's tool to create and edit high resolution vector fonts using a graphic editor. Editing aids include: Bezier curves. B-splines. Unlimited number of vector cut and paste buffers. Rotate, stretch, mirroring horizontally or vertically, move, copy, distort any character or vector. Movable baseline, ascent line, descent line. Automatic calculation of kerning tables. Optional manual placement of kerning positions. Definable zoom levels using movable zoom window.

Automatically smooth vectors. Definable grid and snap. Up to 64,000 by 64,000 point resolution per character. Each font can contain from 1 to 255 characters.

System Requirements:

For the Commodore Amiga: All Amiga systems with a minimum of 1 Mbyte RAM, OS 1.3 or later. A 68020/30 with at least 2 MBytes of RAM, a math co-processor and a hard drive is recommended. For the Atari ST/TT: All ST/TT systems with a minimum of 1 MByte RAM. A math co-processor, 2 MBytes of RAM or more and a hard drive is highly recommended.

DynaCADD is a registered trademark of Ditek International. Compugraphic is the registered trademark of the Agfa Compugraphic Corporation. AMIGA is a registered trademark of Commodore Amiga Inc. ATARI ST/TT is a registered trademark of Atari Corp. Other computers or software names are the trademarks or tradenames of their respective holders. Specifications are subject to change without notice. 1991-1995 Ditek International.

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Announcing The

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Collection CD ROM for Atari TOS Computers - Volume 2

A collection of files on CD ROM obtained from The Crawly Crypt BBS

The Crawly Crypt Collection Volume 2 is the CD ROM with a difference. The CCC Vol. 2 is *PACKED FULL* of uncompressed public domain, freeware, and shareware software. Most programs run right from the CD! Unlike other Atari CD ROMs, The Crawly Crypt Collection does *NOT* contain duplicate compressed versions or other space wasting fillers.

The Crawly Crypt Collection *IS* a treasure chest of software for your Atari ST. It also contains STe and TT specific software as well as software written just for the Falcon030. The CD is in industry standard ISO 9660 format and is readable by any Atari or IBM compatible CD ROM reader that accepts ISO 9660 discs.

How to order the Crawly Crypt Collection Volume 2:

* SPECIAL INTRODUCTORY PRICE: \$29.99 (good until June 1, 1995) *

There are two parts:

- a) Do a demo that knocks our socks off;
- b) Get all 50 questions right in the quiz.

(Wish I was handier with that text editor...)

Anywho, I hope you enjoy -- I even left in the notes-to-Editor -- because that's the only real reason to do it.

I did try to get out on the subject line this was a LONG download, so you could skip it if you wished.

Clock starts now, folks!

THE International ST/TT *Expert* Programming Competition

by: Dave Small

Copyright 1994, all rights reserved.

NOTE: This is different than most articles in CN in that this may be copied provided (please!) you copy it *intact.* I would appreciate translation to other languages very much, especially if you re-post the translated version to a BBS or network, so that others can enter this competition.

* * *

*** Caution: This is for experts. Unlike many columns I write, this one is Not For Beginners. ***

* * *

=====
EDITOR: Do you think you could put a fairly light grey-tone "EXPERTS ONLY" (maybe "WIZARDS ONLY"? [ask Joyce] her opinion) across the page at an angle, as a "stamp", sort of like a security classification would be?
=====

Introduction:

The Expert's Competitions

Over the nearly 10 years I've programmed the ST, I've met a lot of *really* good programmers from all over the world. Briefly, from Charles Johnson to Jeremy (Jez) San, from "AutoSwitch Overscan" to "Spectrum 512", there has been *astounding* wizardry and talent turned loose on the ST and TT.

(I'll start using the word "ST" to cover the full product line from 260-520ST to TT to Falcon now, ok?, to save room. The Jaguar

is not included as most people can't write code for it; it requires special, expensive tools).

So, for your *enjoyment*, I would like to present a top-level, "warp drive", *absolutely the most difficult programming contest* I can do that should stretch the talents of the best, to find *who is the very best* out there.

Now I *know* not all of us have time right now to put together a demonstration program, even though, say, we've been programming on the ST since '85; some of us are busy doing other things (like, say, writing Current Notes articles, *grin*).

So, to "balance" this competition more fairly between people who have time to make a great demo of their talent, and people who don't have time, but work (or have worked) on the ST, there are TWO contests:

- 1) A Demonstration Program: Show Us Your Best!
- 2) An Expert-Level Quiz On The Atari (coming right up; see below)

* * *

Remember, there are two *separate* contests here.
(Although, you are WELCOME to enter both!)

* * *

The Prizes

The most important Prize is to be known and acknowledged as the best there is, here in Current Notes and on the worldwide InterNet, specifically in "comp.sys.atari.st", and elsewhere.

As a token of *our* esteem, two Spectre GCR's are reserved, the first, for the *most* impressive Demonstration of Programming, the second for the person who gets the *most* questions *right* in the following Programmer's Questions (they're after the Demonstration section.)

Finally, a Certificate

Contest One:
First: Show Us Your Best!

The FIRST is a straightforward contest to, frankly, "impress us" -- to do your *very best* wizardry, a "demo" or other type program, (or, to just send in one you've already done.) Believe me, I have seen some really awesome "demos" done for the sake of a demo -- but I have definitely NOT seen them all, just a few that came over from Europe. About 10 disks max. I know there are FAR more.

The Demonstration Contest is a "*what can you DO*?" when you

REALLY roll up your shirt sleeves and *go for it 100%.* We're talking staying up all night (I've done it too!), "pulling out all the stops", drinking coffee or anything with caffeine, and "throwing in the kitchen sink" here.

(I understand those phrases may not translate properly from English; if you're translating this from English, *please feel free* to change them into something appropriate meaning, "doing your very best". Or, just explain, "they don't translate directly", but tell them, "here's the essence of it:")

For those of you here who don't know, making up a "demo disk" and spreading it around to show you're Top Gun in programming is an art form in Europe.

For example, I am particularly amazed at whoever figured out how to put text in the HBLANK (horizontal blank) and VBLANK (vertical blank) areas! (See, the ST is setup in hardware to "blank" those areas out, to make a border -- but someone figured out a way around it!) The point isn't that lots of people know to flip Display Enable at the right microsecond; the POINT is the first person to figure it out and go, Wow!

Now I realize this is not a new trick in 1994; this is an EXAMPLE. It took a lot of work to count cycles and "walk in" the timing. This would be a high-point thing if this contest were held in 1989.

NOTE: You should know that we over here "in the 'states'" (U.S.) often don't get to *see* MOST neat demos. (And we get confused a bit by the messages in them, saying, "THIS demo is to show those programmers at xxxx that We Are Better, so there!", and such. Because WE don't know WHO xxxx is, it's all mystery to us! (If your demo has this, that's okay, but would you mind telling us What's Going On?!?))

For instance, there was a demo of digitized pictures, if I recall correctly, of an ocean cruise to meet with other ST programmers and put out a demo ...

Now, in this competition, I don't as much mean commercial ST products, because not everyone can get something *just amazing* into retail channels to sell, and "straight demos" done for demo's sakes aren't that saleable. Remember the spirit of this; we're looking for the *very best*. Now, if it so happens *your* very best is commercially sold, we have no problem with you entering it in the contest; there is No reason to exclude people who "program for a living" from this!

I would recommend sending only disks and a README file on what is great in what you're sending. (Of course, NO DISKS WILL NOT BE COPIED WHATSOEVER). See the section on mailing entries in for some good advice about disk return, though; it is unlikely your disk will survive two trips. If you want us to reformat the disk when done, just say so; disks are so cheap these days it's more practical to do that than try to return it.

Criteria For Judging

Sandy and I will be judging demo entries based off, to be utterly honest, a mix of factors listed below, but summarized as:

--- The most important thing is us feeling your love for the machine and your talent put together into something great. ---

=====

EDITOR: Can you indent and "dot" these? On a Mac it would be OPTION-8 (just a circular dot, bigger than a period).

=====

FIRST: the "Just How Far Our Jaws Fall Open Factor"; how AWESOME it is. Does it make us look at each other and say, "Wow!!!" Are we talking "Jurassic Park T-Rex" here?;

(Example: Remember the **first** time you saw a program that **really** impressed you? "Blew you away" is an English phrase for it. "Dungeon Master?", say? "CAD-3D"? "StarGlider"? "AutoSwitch Overscan's" Falcon Demo for the Atari Messe?

Do remember to tell us how to get to your demo... does it autoboot? What keypresses? And so forth.)

SECOND: on our knowledge of **just how hard** it was to **get** this effect, **to do what you did**;

(Note: you can **help us here** with a README file, or a letter, explaining what **precisely** is so unique and difficult in your demo; see the questions below to get an idea of the sort of difficulties **w*e* have been through; look, if you've fought through a tangle of obstacles, TELL US!)

THIRD: "Rock and Roll, Doing Something Impossible" Factor.

Remember, you're dealing with a person who put a digitized sound file 125,000 bytes long on the Spectre 1.51 disk, **just** to show you how it sounded in my heart to "break through the impossible" barrier!) Example: the wild **but perfect** **fastfastfast** re-sizing and displaying of text font size, a PostScriptish effect but **incredibly fast**, on an 8 MHz ST that is already being cycle-clocked for horizontal and vertical blank additions; that is very, very impressive!),

FOURTH: Music is usually part of any "demo disk", but there are demos and applications it just doesn't belong in. You won't have points subtracted for not having sound (for example) in a word processor. If **you** feel music belongs, and you do something nice, points definitely added! Please: we're not asking you to be an Academy Awards musician (as one ST programmer is!), just to have music that has your **heart** in it.

FIFTH: if there is a special artistic or technical merit to what you have done. This is also how generally "neat" and "cool" (I hope the word "cool" translates okay; it means "very highly impressive" in this context) what you've done is.

(Example: Just about anything that is different and special. Spectrum-512 showed 512 colors. Tempus scrolls at frightening speed. See what I mean?)

Judging in General

Please realize that of course all such judgments are relative; I expect we'll have a few choice arguments here on which is the *very best*. (And if we just can't agree between two, we will honor BOTH.) We will also likely honor "Honorable Mentions" that are extraordinary in some way.

In some cases, we'll call in the experts: our kids (now ages 12, 11, and 6, for those of you who remember me changing Jamie's diaper at the Glendale show when we released Spectre 128) will be asked which demo is more *awesome*; they *commonly* start-to-finish a Sega game in *one day*, and have a good feel for computer generated images. (I think the testing side of Sega would commit hari-kari if I sent them a video tape of my kids ripping up a program that took a year to write and test in one day).

Bear in mind I've seen many seriously awesome programs, both commercial applications and demos-as-demos, for instance, MIDI-Maze, Jez San's disk that boots on both the Amiga and ST (A-MAZing!), the "Union Demo", the "infinite number of desk accessory" programs, even new desktops. Yet this does not mean you haven't got something so special, so unique, it won't win! We won't bias our judgement towards manuals or packaging, or commercial, "team" programs; we're looking for something you've done specifically to show you're *good*, and the kind of dedication it takes to get it onscreen on the ST.

Okay, that's the spirit; let's go over the usual entry requirements.

Equipment Needed To Run

Assume an 8 Mhz, 4 Megabyte Atari 520-ST, your choice of color or mono monitors (let me know!). I can crank down the memory if necessary, but, uh, would prefer not to, really! (I don't like putting static electricity into my machines any more than you do.) But look, if you need more CPU to pull off "your vision", we have Mega-STE (16 Mhz cache), TT-32 Mhz, and Falcon-030 machines here, with *all types* of monitors, from SC1224 standard color (320 x 200, 640 x 200, SM124 Mono (640 x 400), to VGA (640 x 400), and TTM-194 Double-Page High-Rez (1024 x 768, if I recall correctly), plus the other TT rez modes, as well as Moniterm monitors that run on the Mega-ST, and "Crazy Dots" boards running the Tseng video chip. I don't have any other specialty boards (although I do have an AutoSwitch Overscan that I still need to re-install; the machine it was in died of age).

HOWEVER: Remember: While higher horsepower is nice (by definition, it lets you do more per second), that isn't what we're after necessarily.

--- The most important thing is us feeling your love for the machine and your talent put together into something great. ---

Entering Is Simple!

So, if you'd like to enter your favorite work, all you have to do is *send it*. (PLEASE, please, send it in a "disk mailer", or AT LEAST between two BIG pieces of cardboard, lest the postoffice "festflatten" it! We get too many bent diskettes we can't read otherwise; one-half of the Spectre disks we get returned for upgrade are destroyed!, literally bent, some bent IN HALF (especially on the way from Europe).

On returning disks, let me tell you, it isn't worth it to you or me. Disks are so inexpensive now that it is not worth the postage rates. The other problem is you will probably get back a disk that does not work, or worse, *is not reliable*, a capital crime for a disk. Don't think I'm trying to increase my disk collection; remember, some of the disks will arrive here bent, and, I already have, what, about a thousand disks with various stuff lying around.

I do need to keep them for the length of the contest, so I can compare early entries to later entries.

Or, Electronic Mail

If you wish to upload it, (Good Idea!) which I could well understand given my experiences with various Postal Services, here are some routes.

My account on GENIE is DAVESMALL (no quotes);
CompuServe, 76606,666 (no kidding!), and on
InterNet is dsmall@well.sf.ca.us.

NOTE: Uploads are *generally free* -- you are not charged connect time. The Gadgets by Small RT on GENie will be happy to accept your upload; if that doesn't work out, I can try and make a deal with the main Atari ST RT people.

Also, both GENie and Compuserve can now be reached via Internet; *however*, I don't know where file transfer is on these systems yet. Oh, PLEASE, don't send me a 800K high-bit-stripped Unix "shar" file to decompress, then "compile with Beirut 'C', ok, Dave?" Please send executables and enough documentation to fire them up and make them work.

It is *possible* we could set up an anonymous login FTP site *for uploads* but I cannot guarantee this; the local Net situation is, uhhhhh, "interesting". (Which is why I keep using a San Francisco system, The Well, instead of the local Net.)

If you send to me electronically, *particularly via Internet*, *please* tell me EXACTLY *what to do* to get your demo to the ST properly and run it. *We do want to see it!*

PLEASE INCLUDE EITHER A README FILE (on disk is fine, or letter) TELLING ME HOW TO GET IT INTO THE ST AND RUN IT.

About other ways to send it (disk/e-mail)

A plain ol' .TOS, .PRG, .ACC, or .APP is fine; however, for your sakes, bear in mind the compressors have CRC checking and thus will tell me if your disk went bad on the way ... sometimes I think they ship my disks next to a big magnet load. Personally, I'd send one compressed and one not-compressed; the cost of 2 disks is very low.

So, an .LZH, .ZIP, .ARC is fine, but PLEASE send me the de-compressor too; there are getting to be too many incompatibilities in the various formats (e.g., .ZIPver1 won't work with .ZIPver2 files, etc.) In other words, if you send me DEMO.ARC and want me to de-ARC it, *please* send ARC.TTP (or whatever) to un-ARC the file! I may not have an ARC that is compatible with yours; there are several different ones.

A disk-image program that makes an entire disk into a file is acceptable if you need the space or the demo was written that way originally (for electronic mail).

I will try to return disks that fail or got smashed by the mails, or let you know it happened; same goes for entries via electronic mail. If you have a Net address of some sort, please send it along; I will be *trying* to send acknowledgements that I got your entry, but may get drowned in them.

In your README file / letter:

Let me know, please, how much RAM it should have (or I'll assume a color, 4-meg ST) and whether or not there are any things I need to do, like disconnect the hard disk, use 10-sector floppies, or *whatever*. If needed, *PLEASE* send instructions if I have to do something special (e.g., use a keypress or joystick to open various "doors" to various demos). My kids seem to have genetically gotten all my skill at finding "hidden doors", along with most of my hair ... *sigh*, so don't hide your work from me!

If you want published credit, *PLEASE* send me your names or pseudonyms. *Group efforts count just as much as single efforts* and I will list the names on group efforts; if you want to tell me who did sound, scrolling, etc, please do. Please type or print your signature along with signing your work, so I don't foul up giving you credit. (Please double-check your name's spelling; you'd be surprised how many people miss this.)

PLEASE indicate with your entry, provided it is somehow uploadable/downloadable, or could be put on a Syquest (e.g., doesn't munch out the hard disk drivers, or can be "disk imaged" into a file):

- a) if I can put a picture of the screen in the magazine;
(this includes possibly the cover, in color)
- b) if you WANT your entry uploaded and generally sent around,
in the USA; (if not, it will not be sent anywhere);
- c) If you want your name listed, or a pseudonym, for privacy;
- d) if it is okay for Current Notes to include it in a
collection for ST users in the USA, probably on SyQuest disk.

The reason for this is Current Notes makes a great deal of PD/Shareware software available at a really reasonable price via 44-meg Syquest removable disks, which is very useful for people without a local user group (of which there are lots!). We really have not seen MANY of the really good demos here in the 'States and many people would like to.

(I do understand that some demos make it a point to be hard to copy. I would appreciate you disabling this IF you want the disk sent out into the world.)

Now, if you DON'T want this, your disk and work won't leave my office, and if you want privacy, okay. I will still mail you a prize and scroll.

There is, of course, something else in this for you ...

While it isn't *everything*, being mentioned as "one of the very best programmers" is something worth having, and *if you want*, I will be *happy* to list your name for an employer's consideration. (Or, just photocopy the article). Believe me, anything a little different, a little "better", about your resume, makes it stand out in a pile of other resumes. It says a lot about you that you self-started, tried, and won a competition -- believe me. The quality of entries is going to be very high here.

Again, when listing winners, I'll list your name if you want; let me know if you'd like your entry to be anonymous, or under a pseudonym, let's say, if you work somewhere where having your name on a "demo" would be bad news. (I have had to do that in my past; I understand!)

Second: Show Us Your Working Knowledge

The Other Contest is a set of questions immediately following, which cover some *working knowledge* of the ST which can, in my opinion, ONLY be acquired through long, hard experience and work and really "hanging in there" (look, *where do you think I got these questions*? I found them out *the hard way*, on the ST since 1985, folks.)

If you haven't programmed the ST, you may find them entertaining, in an odd sort of way...

So here's some questions about the ST. They are generally "been there, done that" sorts of questions that really good programmers have had to solve; and because of what I've been doing (Mac emulation), there's a few related to that as well.

The rules are simple. The FIRST entry (as judged by postmark, so everyone starts at the same place) with the maximum number of right answers wins. In case of a tie, I'll think of something.

You can email me the answers t at the addresses above; they will

count as being "postmarked" *when you mailed them*. Look, there's no way I can be responsible if a machine on the Net sits on your mail for a few hours, any more than if a letter sits in some post office en route for a few hours; fair is fair.

I honestly don't expect anyone to complete all of these questions correctly. I will be very pleased if someone does! (Actually, some time in front of a keyboard will answer a number of them; getting to the point where *I understood the problem*, and can so quickly state it here, is what took so long over the years, so maybe I'm overstating the difficulty level.)

I also spent some time looking through listings, looking for comments saying:

```
*
*-----
* This one was HARD! It didn't work like it said...
* Even though it should work, DON'T DO THIS!
*-----
*blah:  blah
*
```

and so forth.

CAUTION: The answers to a few of these are of the type of "Who is buried in Grant's Tomb?" answer. It wouldn't be fun without a few really easy ones.

As you will see, a few of these are going to require you to get out an assembler ... I'm not yet enough of a "C" wizard to pose assembly questions in "C".

All numbers in here are in Hex (base 16) and none of them are trick questions. I've marked some questions "Oldtimers" that apply to early ST developers (and, actually, a little before); if you're newer than 1985 / 1986, you probably won't know these. The people who have seen them won't forget them soon, "I betcha." I've also tried to label the questions as to difficulty, sort of like skiing runs are rated for difficulty. However, "OldTimers" I'm going to assume hacked though the same stuff I did, so no ratings there.

If you find out and answer these (I'll run answers in a later column, Explaining All, once the Competition is over), you will have learned some REALLY cool stuff, some of which is extremely useful.

* * * * *

The International ST/TT *Expert* Programming Competition
Programming & Related Questions
Copyright 1994, David M. Small

1. [OldTimers]:

Why is it a poor idea to use conditional assembly
with AS68?

(AS68 is an Atari development tool superceded by another

assembler). What **exactly** goes wrong? Why is this gruesome?

2. [OldTimers]:

Why is it a bad idea to do this in AS68:

```
;-----  
; (previous code -- whatever, long as it's legal)  
;  
    RTS  
  
;-----  
; Next routine has 2 entry points, with no opcodes on them.  
;  
VIDEOROUTINE  
RELOOP  
    (routine code)  
    BRA RELOOP  
; end of routine  
;-----
```

What exactly goes wrong? Why is this grim?

3. [OldTimers]:

What GHASTLY thing will happen if you assemble an assembly language file named, oh, "DSMALL.S" (just some random name I picked out of nowhere), using AS68, like this:

```
AS68 -l DSMALL
```

4. [OldTimers]:

What happens if you try to LO68/RELMOD a file that doesn't exist? For instance, as part of a batch file to assemble, link, and RELMOD (change from CP/M-68K to TOS format) a file.

5. [POINTS FOR WITTY, ORIGINAL REPLIES]

Why do I not use AS68 nor LO68/RELMOD any more? (HINT: See 1-4)

6. [HARD ASSEMBLY QUESTION]

Assume these registers (data registers all equal corresponding address registers):

```
D0 = A0 = 12345678  A1 = 23456789  A2 = 34567890  A4 = 45678901  
D5 = A5 = 56789012  A6 = 67890123  
D7 = userA7= 00001234  supervisorA7 = 1235  Status Reg. = 2307  
PC = $5000 (and is in a legal program, etc.)
```

You are in supervisor mode (e.g., SSP & current A7 = 1235).

You perform a multiply instruction using D0 and D1. (Any multiply, I don't care!)

WHY, exactly, do you get 3 instant bombs (yes, 3)? (Remember, we're at IPL 7, so interrupts are not distracting us.)

7. [HARD ASSEMBLY QUESTION]

Assume you MUST shut down RAM for a time (probably by writing some value into the Atari Memory Controller, the MCU). (Say, you're working on the 3 MB of RAM upgrade developed in Germany we had to tweak Spectre for -- those folks HAD to tweak the MCU.) Of course, interrupts are off. Now, do a division. Will it work? Why?

Once you figure out 6 & 7, "you're welcome". Believe me, I wish I had known it too!

8. [HARD ASSEMBLY QUESTION]

How, exactly, can you "legally" (e.g., not by directly jumping to the exception vector!) generate a "spurious interrupt" on the ST-series hardware? NOTE: Atari assures me it is "impossible".

9. [HARD FLOPPY DISK CONTROLLER/DISK DRIVE QUESTION]

Many people are aware you can step the disk head past the 80th track; some programs even use this to store data (shriek!). [Not all drive will step past track 80]. However, what is NOT generally known is that there ARE accessible tracks -1,-2, and -3 OUTSIDE of TRACK 00. (I have just told you a secret that will have copy protection makers/breakers turning pale). How can you consistently access tracks -1, -2, and -3, to either implement copy protection or just store data?

[NOTE: This question does not apply to disk drive mechanisms which really have a "Track 00 Stop" where the head is forced to stop at 00; however, there are a bunch of drives out there that go to -1, -2, and -3. In fact, I don't think I've seen a Track 00 mechanical "stop" on a 3.5" disk; they're common on 5 1/4" disks.]

10. [HEAVY FLOPPY DISK CONTROLLER/DISK QUESTION]

Why is it a good idea to ALWAYS step outwards 5 times before doing a RESTORE (seek to TRACK 0)? Note this is done on the ATR-8000.

11. [HEAVY ASSEMBLY/C QUESTION]

Assume you are trying to write a Mac emulator (just to pick something incredibly masochistic to do). Assume the Mac uses memory from \$100-\$13f, and on up to \$B00, for that matter) for "Global Variables", which are often directly accessed by programs (for instance, ol' "MemTop", the top of RAM, at \$108).

Why does this spell *absolute disaster* for a Mac Emulator on the ST hardware?

(HINT: It stopped me for a month! and almost, almost for good).

12. When I solved it, it was the last "big" problem in implementing a Mac emulator. I literally woke up with the solution at 3 AM. Two months later Mac mode ran.

So: How'd I solve this problem?

13. [LIGHT ASSEMBLY QUESTION]

What does Test and Set (TAS opcode) do on an Atari ST? Why? Should it? (TAS is traditionally used to implement kernal operations on multi-tasking, multi-CPU machines).

14. [EXTREMELY HEAVY ASSEMBLY QUESTION]

Assume you are working with a program that generates Nil pointers (in other words, address registers that equal zero, 0.) The programs write to this address. On the ST, that's writing to ROM, and you bus-error. Assume the registers are all in valid RAM (except, probably, the one that's pointing to 0.)

How can you then RECOVER from the bus error, given that Motorola's 68000 books say you can't, and keep going? (Motorola says you need a 68010 to recover, and to implement Virtual Memory, as the 68000 buserr stack frame doesn't have enough data.)

Assume that data written to a Nil pointer is unimportant, because the program should not be doing that anyway! -- the data is unrecoverable.

HINT: Look at a bus error stack frame.

NOTE: About 1/3 of Mac programs do this; we help Mac Developers Beta-Test just by seeing if they "Nil-Pointer" and try to crash the Spectre by writing to 0. Frankly, until I solved this problem, they would crash the Mac emulator; when it was solved was the beginnings of major success for Mac Emulation. That's when the "biggie" programs went stable.

15. [FUNNY ASSEMBLY QUESTION]

Does Atari's TOS *ever* access location 0 because of a Nil Pointer? Pick any version of TOS. Show the statement & address. Please, no printouts over 10 pages long.

16. [TT USER QUESTION; ASSEMBLY/C ANSWER]

Why does having TT RAM (or equivalent) in the TT (or equivalent 68030 accelerated) machine end up usually accelerating the TT about 11% (depends a little on what you're doing), *provided* the RAM is there AT STARTUP?

17. [EXTREMELY HEAVY HARDWARE/SOFTWARE QUESTION]

You need to startup a 68030 with the first 68030 compatible TOS, TOS 1.62, to begin to debug a 68030 board. The TOS chips are plugged in through the Mega ST bus connector and a PAL address decoder (thus allowing all 256K of ROM to be accessed) and are properly mapped at \$00E00000 (by the way, the 24-bit address has nothing to do with this question!) The old TOS 1.4 chips are removed.

Trouble is, you're doing this on a *Mega-ST*, and TOS 1.62 is for *STE* machines, with their added video/sound registers. When

you try to startup, you crash, as TOS initializes video/sound registers that *don't exist on a Mega-ST* and bus-errors out (no DTACK/DSACK generated since "that location don't exist" to the GLUE/Shifter chips).

WITHOUT MODIFYING THOSE TOS ROMS, (like, NOP'ing out the inconvenient MOVE's) and without some big fancy PAL disabling certain ROM addresses, how can you get around this stuff in startup and in the VBLANK (vertical blank) code (where, of course, the low byte of the video address is updated if you changed the register for it).

In other words, I'm asking you how to run ROM code and change the path of execution in "firm"ware.

ANSWER NOT ALLOWED: "This is impossible. That's why it's ROM."

ANSWER NOT ALLOWED: No, you can't use the 68030 MMU to copy the ROMs and move RAM under it; this technique doesn't require anything so sneaky. It require sneakier.

NOTE: This is an EXTREMELY valuable technique to know.

18. [MEDIUM HARDWARE QUESTION]

What *usually* happens if you directly switch on video? In other words, do a MOVE right into the hardware location that has the display mode (low, medium, high rez) to turn the screen on.

(Something like, MOVE.B, #2,hwdisp_mode ; kick on mono)

HINT: "Two men looked out _____ "
"One saw the mud, one saw the stars."

19. [MEDIUM HARDWARE QUESTION]

What's probably going wrong in what happens in question 18?

20. [MEDIUM HARDWARE QUESTION]

What does "ST" stand for officially, and what does it have to do with question 18?

21. [MEDIUM SOFTWARE QUESTION]

What's the solution to 18? How can you kick video on yourself?

22. [LIGHT HARDWARE QUESTION]

Assume you are running on a TT. The cartridge you have in there (let's stay away from Spectre so you don't think it's related ... say, some video digitizer cartridge, .. well, the cartridge suddenly fails with a gruesome direct short circuit. You sensibly turn the TT off and remove the cartridge. You replace it with a new cartridge. The TT has (at best) difficulty using the new cartridge, to say the least! (It probably won't work at all.)

ASSUME that the ROM-decode, read, PAL logic, and all that

stuff, was not damaged.

What's wrong? And why is this something EVERY TT owner should know? (I believe it applies to Mega-STE's as well).

23. [HEAVY HARDWARE QUESTION]

What did Atari NOT keep constant between the ST and TT cartridge timing? Why does this foul up cartridges?

24. [HEAVY SOFTWARE/HARDWARE QUESTION]

Certain Atari chips **must not** be accessed too quickly. For example, the Zilog 8530 serial chip (runs 2 9-pin ports on the TT and the Localtalk-size-compatible connector) cannot be written to faster than 2.2 microseconds per write. Since the TT is smoking... errr, zooming along at 33 Mhz (33 cycles/microsec), it would be easy to write again too quickly, overrun and zonk out the SCC. (The same thing applies to writing to the ACSI "disk chips".)

What's the documented, sorta "official" way of assuring a "slow", 125 nanosecond or "8 Mhz" cycle to provide an **enforced slowdown** for the SCC and disk chips on a faster machine, like an accelerator or TT?

25. [HEAVY HARDWARE QUESTION]

What happens when you try that assured, guaranteed 8 Mhz cycle technique on a TT machine?

26. [HEAVY SOFTWARE/HARDWARE QUESTION]

Assume you're using the ST Atari's mouse with your own driver for it (like, say, some emulator might .. **grin**). The mouse moves. Assume a byte comes in from the mouse. Assume the processor is busy doing an IPL=7 task (that means, all interrupts are disabled, like when reading a Mac disk with Spectre GCR). Assume this continues long enough for the next byte to come in (after all, mouse movements are transmitted in 3 byte packets, containing button, change X, change Y information). Then the IPL=7 task is done and the normal ST Interrupt Priority Level, 3 is set. (The mouse has IPL 6 via the MFP chip, as the manuals say).

Why have your keyboard and mouse just locked up? What is the ESSENTIAL thing wrong?

What's a fairly good way of fixing this in your mouse handler? (I call mine "QuickMouse", by the way.)

27. [HARD SOFTWARE/HARDWARE QUESTION]

What is a **working** method of shutting down the keyboard and mouse, then waking them back up, so that the keyboard buffer and mouse don't overrun? As you can see from #26, this could be necessary for extended work at IPL=7 (no interrupts whatsoever). NOTE: By **working**, I mean it really works, not what some manual says.

28. [REALLY HEAVY HARDWARE/SOFTWARE QUESTION]

Well, if you're smart enough to get 27, how do you do it so it works on BOTH the ST and the TT?

29. [OldTimer] [REALLY EASY SOFTWARE QUESTION ... if you know.]

What did the "bombs" of the crash mechanism look like in the pre-TOS-ROMs version of TOS (that booted up off disk)? (HINT: I want to give you an easy question!)

29. [HARD FLOPPY DISK HARDWARE/SOFTWARE QUESTION]

What precisely is the bug that cuts the floppy disk drive data rate capability to drop by half in most ST's (Atari corrected this after TOS 1.4, I believe ... might have been TOS 3. Yet another reason to get a 2.06 card; your floppies will work faster!)

30. [HARD FLOPPY DISK HARDWARE/SOFTWARE QUESTION]

How precisely does Twister (published in the USA in START magazine, has since become at least an option on most "disk format" programs) work to max-out the data rate to/from Floppy? HINT: It fixes problem 25 by changing the disk layout. (This isn't so hard -- when it was published, we gave out the SOURCE CODE; Twister is the basis for the Meg-a-Minute backup to floppy program. The best you can get from floppies is about 1 meg per minute.

31. [HARD FLOPPY DISK HARDWARE QUESTION]

Why should you definitely wait 30 milliseconds after a step before beginning to write to disk? What are the consequences if you don't?

32. [OldTimers]:

CP/M-68K had a debugger. It could not disassemble one very popular opcode (especially in interrupt code!!). I saw this on a machine called Dimension 68000, which ran CP/M-68K. It was passed on to AtariFolk as a debugger, and still had the bug. It was finally fixed. What was the opcode?

33. [Humans / Electrical Engineering-Hobbyists]:

What is the A.C. voltage on the heat-sink of the power supply found inside the Mega ST's? Measure against, say, board Ground. Be sure meter scale is on multiple hundreds of volts!

(CAUTION WHILE MEASURING!!!, REALLY!!!)

34. [Humans/Don't Try This!]:

How far will you be thrown if you brush your hand against that heat sink? (Please convert kilometers to miles.)

[POINTS FOR ORIGINAL, FUNNY REPLIES]

35. [Humans/Don't Try This!]:

How many days will your arm and chest muscles ache after brushing your hand against this heat sink? (Please convert months to days).

[POINTS FOR ORIGINAL, FUNNY REPLIES]

36. [Humans/Don't Try This!]:

How many days will it take before your hair stops looking like "Young Einstein"'s hair?

[POINTS FOR ORIGINAL, FUNNY REPLIES]

37. [Overseas Travellers, EASY]

Summarize quickly the major difference between US and UK, French, German, and Swedish keyboards.

38. [HARD HARDWARE/SOFTWARE QUESTION]

What is the exact bug, and when was it fixed, in serial (modem) handshaking?

39. [HISTORICAL: Easy SOFTWARE QUESTION]

Which TOS fixed the interminable delay on saving a file if your disk was getting full?

40. [HISTORICAL: Easy SOFTWARE QUESTION]

Who rewrote the Disk Operating System section of TOS to do this?

41. [HISTORICAL: Easy SOFTWARE QUESTION]

Okay, who wrote it in the slow way to begin with?

HINT: Usenet users have an advantage on these questions as The History of TOS was given out there.

42. [VERY, VERY, HARD SOFTWARE QUESTION]

How many birthdays are celebrated in Spectre GCR 3.0 upon startup?

43. [VERY, VERY, HARD SOFTWARE QUESTION]

How many different quotes are randomly selected from in Spectre GCR 3.0 (if it's not a birthday) upon startup?

44. [MEDIUM SOFTWARE QUESTION]

What was one major anti-piracy protection placed on the Spectre 1.51 release disk?

45. [MEDIUM SOFTWARE QUESTION]

Why was this protection so hilarious?

46. [TRIVIA QUESTION]

Why didn't the "Alarm Clock" work for SO LONG in Spectre?

47. [TRIVIA QUESTION]

Name all the releases of Spectre. How many are there that made it out into the world? Include Spectre 128 and Spectre GCR.

48. [TRIVIA QUESTION]

What was the sound in the hidden dedication page of Spectre 1.51?

49. [HARDER TRIVIA QUESTION]

What was the updated sound made available to Spectre users, with the advice it was wind-chimes and hard to hear, so they'd better turn it up?

50. [Awww, Heck, Give 'em a point]

Who's buried in Grant's Tomb?

* * * * *

There you are, an expert-level quiz on the Atari. Given time, I could think of some really obscure questions (why doesn't a 5 1/4" drive always work when you plug it in, or, what is the termination situation on the floppy bus?), but I think 50 questions is enough to separate the Hackers from ... the general populace.

Best of luck, I promise there ARE answers, and I hope this brings back a few memories, too!

See you next time, and I hope you had some fun!

Dave Small / VP
(Gadgets by Small)

Genie: DAVESMALL
Internet: Changing;
for right now, dsmall@
well.sf.ca.us will be ok.
CompuServe: 76606,666

Consumer online services continued their rapid growth during the first quarter of 1995, according to a quarterly census of 73 electronic services just published by Information & Interactive Services Report (IISR), a Washington-based industry newsletter.

At the end of March, 7.3 million subscribers used online services, up from the 6.3 million recorded in IISR's 1994 year-end census. The figure represents a 15.5 percent increase during the past three months and a 47 percent increase since March 1994.

"The rate of growth in the first quarter indicates that in excess of 10,000 people on average are signing up with an online service every day. If the pattern holds -- and there's no reason to believe it won't -- we'll break the 10 million mark before the end of this year," says IISR Editor Rod Kuckro.

According to IISR, America Online Inc. was again the fastest-growing system, adding 500,000 new subscribers, a 33 percent increase during the first quarter. CompuServe also registered considerable growth of 250,000; although its tally includes 700,000 customers outside North America, says IISR.

The top six online services represent 86 percent of the total online audience. They are: CompuServe, with 2.7 million users; America Online, with 2.0 million users; Prodigy, with 1.3 million users; Delphi, with 140,000 users; eWorld, with 80,000 users; and GENie, with 75,000 users.

IISR's research indicates that approximately 20 percent of users subscribe to two or more services, bringing the actual number of online households closer to 5.9 million.

The latest census was taken just as several of the larger online operators announced reorganizations and repositioning, in anticipation of the arrival of Microsoft Network, AT&T Interchange and MCI Communication Corp.'s online service later this year.

-/- Survey: People Like PCs, But ... -/-

In a broad new survey by Microsoft Corp., about three-quarters of respondents said PCs have increased their job satisfaction and reduced busywork and were widely seen as a key to success and learning.

About 59 percent of respondents said PCs have made them more productive, but "a surprisingly large minority" (about 41 percent), say reporters Don Clark and Kyle Pope of The Wall Street Journal, "said that they believe computers have reduced job opportunities rather than increased them."

And 59 percent admitted getting angry at their machines in the past 12 months. More than one-third of respondents said they worry about keeping up with developments in computers.

The Journal comments, "Microsoft's unusual research effort, based on questionnaires filled out by 2,802 children and adults, including retirees, gives numerous signs that the PC has become a familiar,

demystified part of life in the U.S."

Meanwhile, says the paper, Europe seems behind on the "techno-curve," noting that in a parallel Gallup survey commissioned by the software giant, 78 percent of Germans and 57 percent of Britons admitted they have no idea what the much-discussed high-tech highway is about. The French fared better -- 73 percent showed at least a basic understanding -- but the continent lags in embracing the technology world's latest and greatest.

"Surprisingly," writes the reporters, "only 22 percent of the 2,000 Europeans surveyed by Gallup said they were intimidated by computers, compared with about 30 percent of the Americans. On the flip side, 55 percent of Europeans thought that computers were fun, compared with 82 percent of the Americans."

Some other findings, reported by The Associated Press, were:

-- Asked "Would you rather spend time with a person who can use a computer or one who cannot?" 61 percent would rather be with a person who can.

-- Does computer knowledge make women more attractive to men? Nine out of 10 men said it did not.

-- Kids ages 11 to 17 were asked if they had ever helped an adult with a computer and 57 percent said yes.

-- And 15 percent of those kids said they'd rather use a computer than go to a mall, 63 percent said they'd rather use a computer than read a book and 79 percent would rather use a computer than watch "Beavis and Butthead."

-- SATAN Attacks Texas System --

A Clear Lake, Texas, Internet access provider had to temporarily shut down some computers last week after a digital attack by intruders using the new SATAN software. As reported earlier (GO OLT-270), SATAN, Unix software that can be used to probe for holes in computer network security, was released for free Wednesday on the Internet.

"A few hours later," writes Dwight Silverman in The Houston Chronicle, "someone was using it to scrutinize" Phoenix Data Systems. Phoenix owner Bill Holbert told the paper, "These guys can come in and literally take control, get super-user status on our systems. This is not your average piece of shareware."

Silverman reports the attack began about 9 p.m. Wednesday. Technicians watched for a while and then turned off the machines at Phoenix that provide 'shell' accounts, which allow direct access to a computer's operating system. The computers used for SLIP or PPP access -- a direct telephone connection to the Internet -- were not affected.

Holbert said the system was back up Thursday afternoon after some security modifications. "It actually taught us a few things," he said. "I've begun to believe that no computer network is secure." The paper notes SATAN, in theory, could be used to find a weakness in a network's

security. An intruder then could use that hole to enter the system and wreak havoc in a number of ways, such as stealing user passwords, gaining access to private information or destroying data.

Tom Pincus, partner-in-charge for technology information services at Andersen Consulting, told the paper most computer system administrators impose password and antivirus measures and mistakenly consider their security work done. "With hacking becoming almost a cult, security needs a more regular and pro-active review," he added.

-/- CERT Says SATAN Creates New Hole -/-

Network watchdogs at the Computer Emergency Response Team say SATAN, that controversial program released on the Internet last week to help bolster security, has introduced a break-in vulnerability of its own to thousands of computers.

As reported earlier (GO OLT-270), SATAN (System Administrator Tool for Analyzing Networks) was intended to let operators of Internet computers check for security lapses, and thousands of users have downloaded the program.

"But," writes The Wall Street Journal this morning, "SATAN allows hackers to gain control of any computer that uses it," according to an advisory posted by CERT, a group of security experts who monitor incidents on the Internet.

CERT's latest advisory warns users of the vulnerability and instructing them how to plug the security hole in SATAN.

As also reported (GO OLT-331), at least one Internet service provider says it experienced security attacks following SATAN's release.

-/- AOL Becomes Courtney Love-less -/-

Upset at what they say was repeated violations of its network rules for messages, America Online officials have pulled the plug on a public forum in which it had invited communication among fans of grunge-rock singer Courtney Love.

The Hole forum, set up for discussion of Love's band, was disconnected Saturday, "because of a high volume of violations of the network's terms of service, including a death threat," The Associated Press reports.

AOL spokeswoman Margaret Ryan said she couldn't provide specifics of the threat, or identify the computer user who made it. She told USA Today this morning that person's membership has been terminated.

Ryan added she believes this is the first such case at the Vienna, Virginia, online service, but that the system's rules prohibit profanity and racial, ethnic, religious or sexual slurs, not to mention criminal activity.

The Hole forum, in the service's "alternative rock topics" area, contained messages detailing Love's relationship with the late Nirvana

singer Kurt Cobain, who committed suicide a year ago Saturday. Jim Merlis, a spokesman for Geffen Records, Love's label, said Love responded to some of the messages using online pseudonyms.

Meanwhile, Love and other Geffen Records artists are discussed in CompuServe's Recording Industry Forum (GO RECORD).

-/- Intel, Oracle, Sequent Team Up -/-

A joint project to develop interactive multimedia computers -- such as those providing video on demand over phone lines -- is being launched by chipmaker Intel Corp., software publisher Oracle Corp. and computer maker Sequent Computer Systems Inc.

Reporting from Santa Clara, California, United Press International says the first products from the alliance will be available in the fourth quarter and will be "targeted at phone and cable companies looking for ways to offer more services to consumers upgraded fiber-optic lines."

"By joining forces with industry leaders Oracle and Intel, Sequent intends to offer the premier interactive multimedia platform solution," Sequent Chairman/CEO Casey Powell told the wire service.

He added, "The family of new products, based on the Oracle Media Server software running on optimized Intel hardware components, will enable Sequent to incorporate technology advances from Intel and others on a regular basis while reducing the total cost of the solution for our customers."

Financial terms were not disclosed, but a press release quoted the companies as saying the solutions will incorporate Intel's scalable parallel processing platform for the video server, Oracle's Oracle Media Server software and Sequent's DYNIX/ptx operating system, Symmetry 5000 application servers and systems level software.

-/- Terisa Security Backed by Big Three -/-

CompuServe, America Online and Prodigy all have agreed to invest in Terisa Systems for development of technology to provide security for commercial and financial transactions on the Internet.

Terisa officials say the firm will merge its Secure Hypertext Transfer Protocol system with Netscape's Secure Socket Layer technology. Both standards have been developed to provide security but systems are incompatible.

Reporting from the Internet World '95 trade show in San Jose, California, Susan Moran of the Reuter News Service says IBM also will take a stake in Terisa, a small Silicon Valley company that develops security technology. Other equity investors include EIT and RSA Data Security Inc., Terisa's founders.

"So far, there is no Internet security standard, making some companies and consumers wary of entrusting the vast public network with credit card numbers and other confidential information," Moran writes. "But worries that computer tampering could slow the growth of the

Allan Schiffman, Terisa's chief technology officer, told the wire service, "We see security over the Internet for commercial transactions becoming better in time than security for non-Internet transactions."

Reuters says the products "will combine two conflicting transaction security protocols, or languages, now in use into a single package. They are called Secure Hypertext Transfer Protocol, or Secure HTTP, which Terisa has developed, and Secure Sockets Layer, or SSL, from Netscape."

"Company officials said the benefit of having a combined package is that applications will be able to communicate securely even though they may have been offered by different organizations," Moran reports.

Moran says the four used the show to demonstrate how the computer system combines Tandem's Web server computer, Checkfree's payment processing system called the "electronic wallet," Spyglass's Mosaic browser software and V-ONE's encryption software.

Defender 2000 Update! Opinions!
Atari's Retailer Outreach Test Plan!
And More.....

I don't know if it's apathy lately, or just what is going on these days! New games are showing up, albeit slowly. There's not much talk going on with respect to these games. Sure, we've seen an occasional "cool" or "it stinks!", but overall the enthusiasm has been much less than the deafening noise we've been accustomed to in past weeks.

The CatBox is out, but I've only seen messages from two people who have received one. STReport's review unit is on its way to us, so we will have our comments in an issue soon - look for a review by Dom

Is the delay of the JagCD the cause of the apparent silence; or is it the lack of "system killers" that's behind it? I really don't know. Whatever it is, something has to happen soon to bring back the excitement that we all know the Jaguar can invoke. The recent price break on the core system should have an effect, as long as the public is made aware of it. We'll see. Later on in this issue you'll see one such test plan going on now in California. Let's hope it sees some success in such a manner as to convince Atari to spread that plan throughout the country! It sounds like a great plan, as you'll see.

Until next time...

Current Available Titles ~~~~~

Available Soon ~~~~~

CAT #	TITLE	MSRP	DEVELOPER/PUBLISHER
	CatBox	\$69.95	ICD

Hardware and Peripherals ~~~~~

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> Jaguar Online STR InfoFile           Online Users Grow! & Purr!
  #####
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From Jeff Minter's web page, the latest Defender 2000 update:

We now have a snoot new rendered player ship to replace the drawn one. It looked cool but the renderedness wasn't too apparent in play, so I got my artist to render a few frames of the ship tilting, which are used as you move up and down. It llooks great. This introduced a new problem though - previously the ship's lasers came out of a single laser tube. Now, with the tilting, *two* tubes are quite clearly visible... so I doubled the firepower. You can waggle the ship to offset the tubes and make a pretty effective spread of laser. With all those beams flying about it's a good job that collision detect is so quick on the JagRISC...

Progress during the last week has, I am delighted to say, been fuelled by large amounts of Inca Kola. Since I asked about it on these pages, I've been flooded with reports that you can indeed get the lovely stuff in the US... and have now located a place just up the road in Mountain View which stocks gallons of the stuff. My fridge is full of it, and so am I. *uuurp*

I am also delighted to say that driving out to pick up the Inca Kola was extremely pleasurable in itself, since it was in my shiny new MX-5 with the top down. Yes! Yes! Yes!!

The focus of my attention has now returned to the background generator of 2K, which is very nearly ready for the tender mercies of Ed my graphic artist. I need a tiled, perspective surface for the ground level texture. I decided to use the Object Processor for this... got it working at first, but the raster interrupt service routine on the GPU was all but maxed out updating the parameters of seven tiles on every scanline, and as soon as you started to hit the system with other stuff the OLP'd overrun and go down. So, I thought, simplify it, use one object only.. which works, but you get jaggies due to the relative coarseness of scaling on the OLP as compared to the Blitter. Strike two. So now I'm halfway through implementing a solution which should allow me to do proper tiling with seven objects again, involving a certain amount of precalculation, and only having to update one pointer during the raster interrupt, which shouldn't be a problem at all. Hopefully I should get that running on Monday, and then I'll be ready to get going on doing the first actual 2K level.

I'm also expecting three tunes on CD Real Soon Now, and will have to sort out running with CDBios and all that jazz. Should be cool. Should also mean I'll be able to play Floyd or anything in the background while I'm testing the game - excellent!

\
(:-) - Vroom! *slurp*
/

Fm: Daniel Skelton 73742,464
To: All, Especially Atari

As if I needed further validation of my beliefs about pack-in games, I read the following exchange from May's Next Generation magazine in an interview with Steve Race, president of Sony Computer Entertainment (and an Atari alumnus from the early 80's):

Next Gen: What about a bundle deal? We've heard that Ridge Racer will be included, is this correct?

Steve: Well, I think if you take a look at the history of videogames in the United States, virtually every successful platform launches with a good packaged game.

Next Gen: So what does this say about 32X?

Steve: [laughs] Yeah, that's why I said "every successful platform!" You can go back as far as the old Atari VCS time frame, it really started to take off when we put Space Invaders in it, or when we put Pac-Man in

there. At least, domestically, in the United States, you have to put a product in there, and you have to lead with a very good product. Our intention is to do exactly that.

I'm starting to feel like I'm researching a term paper! The interview is quite interesting in its assessment of cartridge vs. CD systems, particularly as regards lead time to manufacture a CD, which is much lower than a cartridge. Race is dismissive of Atari and 3DO's chances, and indicated that Sony has learned from their past mistakes with Beta VCRs that they need to loosen the access to their technology to 3rd parties.

Although his recollections as to the SI and Pac-Man bundle may be a bit off (they were bundled after the height of the VCS), he is right in that the VCS skyrocketed in sales when SI was released in 1978, and he is correct in his essential point that the software sells the hardware, and that the first pack-in is crucial to a platform's success.

So I hope Atari is still listening, even though my recent posts threaten to make me a Johnny One-Note about the CD pack-in game. If the CD pack-in game is so good that it's worth the entire price of the CD to play (like D2000) then the CD should sell to every current Jaguar owner, and probably spur some new sales. Since D2000 probably won't be available, something as close to it as possible should be chosen, and the CD player held back until the pack-in can be of sufficient quality. And not Vid-Grid.

When the combined cartridge/CD system comes out later this year, I think the best bundle would be a Jeff Minter triple-play: Tempest 2000 (cartridge), Defender 2000 (CD), and Virtual Light Machine (built in). Of course, you'll have to give a pretty penny to Yak, but the volume of sales should make it worth everyone's while.

However things end up, I hope that my urging here is well-taken by those with the power to make such decisions. I've noticed that Atari reps have been quite regular in their posts to this forum, but have been rather quiet lately. I only can hope that this indicates they're too busy to do more than lurk, and that this is the prelude to a big push this summer.

Thanks for reading this,

Dan Skelton
Antique Videogame Aficionado and proud Jaguar owner

Sb: #Retailer Outreach Test
Fm: SYSOP*Jeff Kovach 74777,3071
To: All

From the net, some very interesting news of a new 'retailer outreach plan' that Atari is testing in Southern California:

From: rjung@netcom.com (Robert A. Jung)
Newsgroups: rec.games.video.atari,alt.atari-jaguar.discussion

Subject: INFO: Atari's retailer outreach test plan
Date: Mon, 10 Apr 1995 03:40:10 GMT
Organization: Southern California Lynx Enthusiasts
Message-ID: <rjungD6svIz.Fnx@netcom.com>

Sorry if the Subject: seems a little confusing. I'm not quite sure how to summarize this. Anyway, stuff of interest to Atari-watchers, I'm sure. Everything's from memory, so I may have a few details off, but the gist is here...

I was invited to sit in this afternoon at a briefing session about Atari's attempts to improve retailer relationships, distribution, and market analysis. The session was headed by Derek Wong of Wong & Associates, who are Atari's retailer contact point for the California/Hawaii area. Wong & Associates also do work for Sega, Capcom, and other video game companies, so they know quite a bit about the industry as a whole.

Anyway, it seems that Atari recognizes that their relationship with the retailers needs improvement. So to fix that, they're trying a strategy to "build bridges," in hopes that having friendlier retailers on their side will help sell more Jaguars. Since the Southern California (Los Angeles and Orange County) area is their biggest market, they're going to try a test-market down here (almost two hundred retailers all together, if I've done my math right).

Ideally, Atari wants:

- * To improve relationships with their established retailers in the area,
- * To identify problems retailers are having that may stop them from selling more Jaguars (such as distribution or quantity),
- * To find out what games are selling, how many titles the stores carry, and how salespeople and managers feel about Atari's efforts.

If this test plan is successful (it gets retailers enthused about selling the Jaguar and backing Atari), it will be expanded nationwide. Again, this is currently in the concept/testing stages more than anything else.

So what's the test plan?

1. Each dealer/outlet will be given several Jaguar games (ALIEN VS. PREDATOR, DOOM, VAL D'ISERE SKIING AND SNOWBOARDING, IRON SOLDIER, and TEMPEST 2000). These games are *FREE* to the store. If the manager wants to sell them, it's an extra \$150-\$200 in profit right there. If the clerks want to keep them for their own play, that's cool too.
2. If they want it, each dealer/outlet will receive a free set of Jaguar merchandising material. This consists of a counter card, brochures, a "dangler", a window decal, and a poster. Both the card and the poster emphasize the \$159 SRP price for the Jaguar; this is Atari's big push here, the new lower price.
3. If they want it, each dealer/outlet can get a Jaguar kiosk as well. They merely have to tell the Atari rep, who will forward the request for a *FREE* kiosk to set up in the store. Those things cost \$1300+ each, by the way...
4. The Atari representative will ask the dealer/manager about their feelings with Atari and the Jaguar. They'll ask about sales (units sold,

best-selling games, etc.), suggestions, problems, advertising impressions, whatever.

--> For people in the Southern California area, Atari will be running a month-long television advertising campaign (as part of this test) to promote the new \$159 price point. A new commercial is ready to roll, highlighting the best games out now and showing quick glances at new titles (RAYMAN, FIGHT FOR LIFE, BURN OUT, HOVER STRIKE, and ULTRA VORTEX were ones I remember seeing). If you're in the area, check out KCOP, KTLA, and KCAL for commercials. Best times to watch would be during local basketball games, weekend movies, STAR TREK: VOYAGER, BABYLON 5, and AMERICAN GLADIATORS. Write if you want more details (yes, I have a copy of the planned commercial air dates).

5. Finally, after everything's been handed out, Wong & Associates will gather the data, forward and requests, answer questions, and look at trends and problems and whatnot.

Again, this is the short-term effort; what happens next will depend on how the results look.

Since the discussion was very free-form, a lot of interesting information also popped out onto the table. In no particular order:

- * There is a very good chance that RAYMAN will be distributed/marketed by Atari themselves, and not Ubi Soft. Advance word is that the game looks, sounds, and plays better than DONKEY KONG COUNTRY, BTW.
- * Advance word from the magazines is that ULTRA VORTEX got "great" reviews. UV may also be distributed by Atari as well (I'm a little hazy on this point).
- * The \$199 Jaguar + pack-in game deals are history.
- * The \$159 Jaguar packages apparently came directly from Jack Tramiel himself. While Sam and Gary and Leonard were toying around with the idea of discount coupons after the Winter CES, Jack just said, "Why don't we knock the price down to \$159?" The idea is to duplicate the success of the Commodore 64 by pricing it so low that people -can't- pass up the deal.
- * The Jaguar CD-ROM is finished and piled up in warehouses. Atari is only waiting for an impressive pack-in game to be finished (which IMO implies that it will -not- be VID GRID). The pack-in was not specified; the current target is to have Jaguar CDs on store shelves in time for E3.
- * 20% of all video-game console sales are in Southern California alone.
- * Atari's new director of game development (I didn't catch his name, sorry) comes directly from Sega.
- * Everyone present agreed that more games, and more impressive games, are needed. "The lower price is PART of the solution, but not THE solution."
- * Enthusiasm at Atari is still high; the falling Yen gives Atari more time to establish a hold before the PlayStation and the Saturn and the Ultra 64 arrive, as the low-cost alternative.
- * Atari can operate with as little as \$12 million a year; the \$90 million from Sega is more than enough to keep the company going for several years,

Anyway, I hope you found this glimpse at Atari's efforts interesting, at least. I thought it was interesting; it wasn't a blind "rah-rah" cheerleader effort, and it wasn't an indifferent chore, either. Feel free to ask questions; I can't promise I'll answer them all, but... B-)

Fm: Ron Beltramo (Atari) 75300,2110
To: SYSOP*Jeff Kovach 74777,3071 (X)

If anyone online is out in Los Angeles I would love to hear about what you find in the stores over the next few weeks. Jaguar is sold at Toys R Us, Good Guys, Babbages, Electronic Boutiques, Tower Records, 20/20 Video, Adrays, Fedco, Virgin Mega Stores, Game Star, Radical Video, Mascos, and selected Warehouse stores (and other independent accounts). A number of accounts are also featuring the Jaguar in their ads over the next 3-4 weeks. Please get the word out and let us know what you see happening. Contact either myself or Don Thomas. Thanks for your help

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> ONLINE WEEKLY STReport OnLine           The wires are a hummin'!
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On CompuServe

compiled by
Joe Mirando
CIS ID: 73637,2262

Hidi ho friends and neighbors. Boy, the months just seem to be flying by, don't they? It seems like only yesterday that we were looking forward to Christmas morning, and now Easter and Passover are here. I know that it's easy to get caught up in the festivities, but please take at least a moment to reflect upon what these holidays are really about.

Well, let's get on with the business at hand... the news, hints, tips, and info available every week right here on CompuServe.

From the Atari Computing Forums
=====

First off, we've got this announcement from Sysop Jim Ness:

"SAN JOSE, Calif., April 10 /PRNewswire/ -- In a move clearly reinforcing its leadership in Internet services, CompuServe Incorporated today announced the industry's most competitive Internet pricing: free, full Internet access and Web browsing software for its members.

CompuServe Information Service members enrolled in the standard pricing plan (\$9.95/month) now automatically receive three free hours of Internet access per month in addition to unlimited access to more than 120 basic services. Additional hours of Internet use by these members will be billed at \$2.50 per hour, an hourly rate that is the lowest among online service providers.

For high-volume Internet users, CompuServe introduces the Internet Club, which offers 20 hours of access to Internet services for a \$15 monthly fee (in addition to the basic \$9.95 monthly membership fee). Additional Internet hours will be billed to club members at \$1.95 per hour.

In a separate announcement, the company unveiled additional Internet-related services, specifically, free distribution of the CompuServe NetLauncher, a software product providing one-step access to the World Wide Web via SPRY Mosaic; and a full Internet connection using the Point-to-Point Protocol (PPP) that is open to users of any operating system or platform.

Savings under the new pricing formula range from 58 percent to as much as 87 percent over CompuServe's previous Internet pricing, depending on how many hours are used and whether or not the club plan is chosen. These prices apply to CompuServe's extensive 9.6 and 14.4 kbps local access, and will apply to 28.8 kbps access as it becomes available. Internet services are free of communication surcharges through CompuServe's network in the United States, Canada and Western Europe. Supplemental network charges and any monthly fees for access through other networks still apply.

"CompuServe is in a unique position to offer the best value to today's Internet user," said Maury Cox, CompuServe president and chief executive officer. "We have the largest customer base worldwide; we

own our own network; and we recently acquired SPRY, the leader in Internet software. From this position of strength and profitability we can offer not only the best prices, but also the best features and service.

"Our members and prospective members can now eliminate the monthly fee they have been paying to an Internet-only access provider and have the convenience of meeting all their online needs in one place, inexpensively," Cox continued.

"Internet Made Easy(SM)" is CompuServe's strategy to provide easy-to-use, affordable Internet access and related services to its information service members. CompuServe was the first online information service to offer email access to the Internet in 1989. Telnet access to the information service from the Internet followed in 1994, as well as FTP capability and access to USENET Newsgroups. For a complete listing of CompuServe Internet services, access CompuServe's home page on the World Wide Web (<http://www.compuserve.com>) or call for more information.

The CompuServe Information Service is the world's most popular online service with 2.8 million members who access the service from more than 150 countries. The undisputed industry leader in innovation, the service offers global email, the industry's first CD-ROM supplement, libraries of free software, selected 28.8 kbps access and worldwide Internet services. CompuServe is recognized globally for its international membership and diverse content.

CompuServe's online international newsstand features more than 200 general interest and niche publications, dozens of syndicated columnists and more than 900 entertainment, hobby, games and personal computer forums. For a \$9.95 monthly fee, members have unlimited access to more than 120 services including daily worldwide news, weather and sports reports. In addition to the CompuServe Information Service, CompuServe offers networking, electronic mail and business information services to major corporations worldwide.

CompuServe is an H&R Block (NYSE: HRB) company."

Christian Roth tells Jim:

"Nice to hear that news!

Specially the internet connection via PPP protocol could lead to an interesting connectivity.

Is this service available already? GO INTERNET took me to the internet forum and I was happy to see telnet added since I've visited last time, but I don't know how to set up a PPP connection."

Jim tells Chris:

"GO INTERNET should be set up by now. I believe GO PPP gets you there directly, too.

If you have a PC, GO NETLAUNCHER gets you a free copy of Mosaic for CIS (CIS owns Spry, the developer of Mosaic). Even the download is free. Good thing, because the download area is overwhelmed right now; my download went at about 700cps with a 14400 connection."

Brian Gockley of Se Informer asks Jim:

"As an Atari user, what will this do for me? Will SPRY run on my TT?"

Jim tells Brian:

"I understand that there is a Mosaic clone coming out for the ST soon. Until then, you still can't get WWW access. However, telnet and usenet, both of which have been available for awhile now, only require a terminal program (vt100 for telnet).

Usenet gets you messages somewhat similar to the forums here, and telnet logs you onto distant computers, getting you whatever the distant computer allows. Sometimes just text, sometimes downloads, sometimes a search engine for research."

Sysop Jim posts another press release for CompuServe (Boy, these guys have been busy this week):

"SAN JOSE, April 11, 1995 -- On the heels of its acquisition of SPRY(TM), the largest Internet industry-related transaction to date, CompuServe today announced sweeping plans to upgrade its global data network for enhanced worldwide TCP/IP network services.

In its next fiscal year, beginning May 1, 1995, CompuServe will execute the conversion of all its existing 42,000 dial ports to V.34-compliant 28.8 kilobit-per-second (kbps) local dial access. Other planned enhancements over the coming fiscal year include more than doubling its current number of network dial ports to over 85,000--all to support 28.8 kbps--and initiate roll-out of ISDN services. The upgrade of over 420 Points of Presence (POPs) for 28.8 kbps local dial access, including CompuServe's 60+ international POPs, is slated for completion by the end of CompuServe's next fiscal year, concluding April 30, 1996.

ISDN service, which will offer access speeds of up to 64 kbps using switched services, will be available via 1-800 dial in June, 1995. Local ISDN access will be provided in approximately 10 cities by the end of August, 1995.

All ports in the CompuServe Network are now, and all future ports will be, PPP-ready. There will be no extra cost incurred for accessing the CompuServe Network at 28.8 kbps. Pricing for ISDN and a list of initial cities to receive the high-speed upgrades will be available at a later date."

Peter Joseph tells Sysop Jim:

"Boy do I wish I had some HRB stock right about now. That's terrific news, especially about 28.8kbps carrying the same prices. :) I can't wait until they convert my node. I just upgraded my 288 V.FC modem to full bore V.34 and it's itchin' to fly. The only trouble now is, the speed/read ratio has surpassed my available time, i.e. at these speeds I can afford to go to many more forums and download messages daily, but there just isn't time to read them all before the following day. :-(

Sysop Bob Retelle tells Peter:

"Heh.. looks like we humans may be obsolete...!

I know what you mean about not being able to actually read all the info that's available "out there"... I keep downloading digest versions of several Internet newsgroups every day, and hardly have time to even look at the index, much less read it all...

What we need is an Artificial Intelligence that can read all this stuff for us, and that knows what interests us.. then once a week or so it can tell us all the neat stuff it's read...

Sort of like a well informed friend who calls us up and lets us know the latest gossip."

Chris Roth tells Bob:

"Nice to hear all the announcements for 28.8 kBaud connections while we here still have nothing better than anachronistic 9600 Baud ;->"

Mike Myers posts:

"I'm having a problem with software getting corrupted somehow. To me, it winds up with being unable to get a program to function. Usually, they stop and give an error message of many different varieties, and that's all. Won't go any further. However, with one program, the developer (A&D in Oregon) took a look at what was in there, and neither of us put sections of a desktop or other unknown data in it. Any ideas as to what's happening? It may be connected with me enjoying downloading all kinds of new software, but this machine hasn't damaged any software before that I know of. It's old, probably made in 85 or 6. The next is one part of it, that was written up earlier, and not sent timely.

Re Fontgdos;

I got myself a copy of Fontgdos, and ran into problems. Mainly, once I got it set up, and almost running, the screen during setup says "Fontgdos not loaded, corrupted driver". After my program drops this off, I'll recopy and try again, but first, what driver? The program driver (if there's any such thing), or the printer driver(s)? Second, if GDOS is still in the disk, will this mess things up? In the folder? In short, should I pull out every copy of GDOS I can find? Third, I have a copy of GDOS in the folder with all the programs that involve printing. Should I?"

Dan Parrish asks Mike:

"Did your problems begin after trying to load and use FontGDOS? I seem to remember a friend of mine problems with FSMGDOS. I know we aren't talking about the same program, but I can't help thinking there could be a source of your problem. Have you added any upgrades to your machine, and which TOS are you using. Could the problem be with either your hard drive or your disk drive. Could it/they be showing signs of old age???"

Matt Faehnle asks:

"What is the best Word processor out there for the ST? I only have 1Mb of ram and was looking for something that would be compatible with my Deskjet 500. So far the only one I have looked at is That's write 3. I saw a review in St Format. It seemed like just what I need (WYSIWYG and multiple fonts) but I'm not sure where to buy it (I live

in Columbus, Ohio). Is there anyplace here in the U.S. where I could buy a wordprocessor?"

Albert Dayes of Atari Explorer Online Magazine tells Matt:

"Toad Computers is one such store where you can buy Atari word processing software.

Toad computers (800) 448-8623 or (410) 544-6943"

Brian Gockley of ST Informer Magazine tells Matt:

"That's Write is an excellent WP, as are many others. What kind of writing do you plan on doing?

Also, there are several Ohio stores that carry Atari stuff, try:

D & P Computer
P. O. Box 811
Elyria, OH 44036
Work Phone: 800-535-4290

or

Rising Star Computer
P.O. Box 20038
Dayton, OH 45420-0038
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Matt Neopolitan tells us:

"I downloaded the spc_v.zip file from this forum to view some of the spectrum pictures. Now how do I actually use it? Everything in windows says its too big to fit in that notepad. Please explain exactly what I need to do as I'm new to this."

Sysop Bob Retelle tells Matt:

"I don't believe the SPC viewers were designed to be run from Windows..

After you unZIP the file in its own directory, put any Atari .SPC graphics files you have in the same directory and run the SPC viewer... there should be some documentation included in the ZIP file."

Eric Knutson posts:

"I am looking for a device driver for a CDROM on my STE. I have heard that there is a PD version that is fairly good and one for sale (I believe it was extendos and metados) Any info on either and where they could be found would be appreciated...

Is extendDOS a retail product or is it a public domain driver? If it is the latter, where might it be posted?"

Albert Dayes of Atari Explorer Online Magazine tells Eric:

"ExtenDOS is the commercial driver and it is very well supported. I would recommend that driver over any other one available. An Atari dealer like Toad computers is one place where you can find ExtenDOS or

ExtenDOS PRO."

Greg Kopchak of It's All Relative tells Eric:

"We have ExtenDOS for \$29.99 with the Photokina demo CD.

It's the Pro version and the one we suggest right now.

It's All Relative
2233 Keeven Lane
Florissant MO 63031 USA."

Bruce McLay tells us:

"I have a 1 meg STE TOS 1.6, purchased in New Zealand in 1989. I have managed with the problem outlined below for 2 years. No commercial support has existed for Atari in New Zealand for some time, although there are still loyal users of course. My local users group (Canterbury Atari Computer Enthusiasts) people hadn't come across this problem and couldn't suggest a solution. SO... I'm trying the international Atari community!

All goes well to getting to the desktop, but on single-clicking a drive icon (usually Floppy A but the same happens with B and any hard drive icons as well), a highlighted icon appears on the screen with a very corrupted (ie totally unintelligible) label. It does not respond to attempts to cancel it.

Another symptom is that moving the pointer up and dropping down a menu results in two totally unreadable menus in the lower half of the screen, (the dropdown choices do not appear directly below the 4 headings at all). These "ghost" menus do not respond to being clicked on, but they do respond to cursor movements directly below the dropdown menu headings. This problem occurs whether booting from hard drive, floppy, or from a bootup with no disk in drive A (and hard drive not running).

By trial and error I discovered that turning the Blitter off provides a "cure" to the corrupted screen (once I force a redraw by opening a window and making it full size).

A more useful "cure" is to have a startup disk with Blitter off. I use Superboot with a hard drive mostly; again I can configure this to have the blitter off, and also to avoid dealing with the desktop, but what's the point of having a blitter if you've got to turn it off to make the computer useable? I can't guarantee the the blitter chip is causing the problem, it's just that turning it off seems to make the system useable.

I should add that one "solution" I tried was to buy a cheap extra STE. This I did, but my pleasure at having an obliging interface was quickly diminished when I discovered that a quick burst of data from (and/or to) the hard drive led to massive corruption of said hard drive filenames requiring reformatting and reloading of data (yes, I was backed up, but still...).

I know, faulty DMA chip etc etc. However, I have an ATARI Megafile 60 hard drive (regulation kit as far as Atari are concerned). Also, both computers have DMA chip serial numbers which are in the "suspicious" range, yet the original STE that I have works fine with the hard disk

(apart from the screen problems detailed above!). I have a longer cable from DMA port to hard drive than is recommended, and I guess this is the cause of my data corruption problems with the second computer (even though I've never had hard disk problems with the first computer).

I would love to hear from anyone who's come across these problems ie (1) corrupt screen that is "fixed by turning off the blitter and (2) hard drive corruption even with a regulation Atari Megafire 60 hard disk."

Sysop Bob tells Bruce

"It sounds like you may have a bad blitter chip in the one STe, if turning it off cures the problems.

At first I was going to suggest you delete your DESKTOP.INF file and try re-saving it (this sometimes cures similar desktop problems), but from your description of what's been happening it really does sound like a hardware problem.

As for the "bad" DMA chips, not ALL of them had problems, it was just that they could be "weak", which would lead to the disk corruption problems.

So it's entirely possible that you could have one that works fine, and another that has problems with ANY hard drive, even a "genuine" Atari drive.

Again, the only real solution to that problem is to swap out the DMA chip.

You might want to try swapping the hard drive cables between the two STes, if both of them are detachable, and see if a shorter cable length might help. Long cables can add to the problem..."

Joe Caverly asks:

"Can an Atari 1040 ST be upgraded with a hard drive? It presently just has a floppy drive in it. If it can be upgraded, whereabouts can I get a hard drive?"

Albert Dayes of Atari Explorer Online Magazine tells Joe:

"Yes, it can be upgraded to a hard drive. All you need is an external case, power supply, SCSI hard drive, host adapter, scsi cable, host adapter software like ICD's PRO SCSI, etc."

Mike Mortilla jumps in and tells Albert:

"Gee, Albert, you make it sound so complex!

All I ever did was get a HD (which usually includes a power supply and all that other stuff) and plug it in. In the case of a SYQUEST drive I did have to buy The Link from ICD (GO ATARIVEND).

If I thought I needed all that other stuff I'd still be working from floppies! <grin>"

Albert tells Mike:

"I guess it depends if you like the build it yourself versus the pre-built models."

Mike tells Albert:

"If I did the build it yourself model I probably STILL be using floppies! Pianos I can build. Music I can build. Even brick walls I can build. But computer stuff I buy. That is not something you build!!! <very big grin>"

James Coyle asks a question about Gadgets by Small:

"I haven't been in this topic in a while, but I see all this talk of a new Spectre version. Didn't Spectre and Gadgets go away forever a few months ago? Its demise was one of the primary reasons I left the Atari platform and went over to Mac world. I don't see any posts here concerning whether Gadgets lives. Please inform me!!!"

Mark at Gadgets by Small tells James:

"Unfortunately, I have not had any contact with Dave Small for months. I only know the "rumors" that are flying around.

I am still using this account (until I am asked to stop by either Dave or Ron) to do my best to answer Spectre related questions. I check the forum on a daily basis.

To answer your question....the most recent version of Spectre is still 3.0."

On the subject of a successor to the Portfolio, Atari's Palmtop computer, Dave Cousins of D.I.P. (the company that designed the Portfolio) tells us:

"DIP did develop a Portfolio 2, but Atari turned it down because they put all there funding into the Jaguar and the games market.

You have to ask the question after the performance of the Jaguar, did they make the right choice."

Well folks, that's about all for this week. Have a happy and healthy holiday and be sure to tune in again next week, same time, same station, and be ready to listen to what they are saying when...

PEOPLE ARE TALKING

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... The FAT Lady

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